Einstein's General Relativity Is An Ether Theory

Einstein Was Wrong

Can You Amaze This Amazing Mind?

Albert Einstein Presents The Gravitational Ether Theory

(aka *General Relativity)*

"Einstein's relativity work is a magnificent mathematical garb which fascinates, dazzles and makes people blind to the underlying errors. The theory is like a beggar clothed in purple whom ignorant people take for a king... its exponents are brilliant men but they are metaphysicists rather than scientists." Nikola Tesla New York Times (11 July 1935)

Ether and the Theory of Relativity
by Albert Einstein, 1920

"As to the part which the new ether is to play in the physics of the future we are not yet clear. We know that it determines the metrical relations in the space-time continuum, e.g. the configurative possibilities of solid bodies as well as the gravitational fields; but we do not know whether it has an essential share in the structure of the electrical elementary particles constituting matter. Nor do we know whether it is only in the proximity of ponderable masses that its structure differs essentially from that of the Lorentzian ether; whether the geometry of spaces of cosmic extent is approximately Euclidean. But we can assert by reason of the relativistic equations of gravitation that there must be a departure from Euclidean relations, with spaces of cosmic order of magnitude, if there exists a positive mean density, no matter how small, of the matter in the universe."

"Albert Einstein gave an address on 5 May 1920 at the University of Leiden. He chose as his topic *Ether and the Theory of Relativity.* He lectured in German but we present an English translation below. The lecture was published by Methuen & Co. Ltd, London, in 1922."

The General Relativity 'Thought Experiments' can be shown to be in error with a compass.

The famed Foucault Pendulum experiment or a gyroscope, along with a compass, or simply "cutting the rope" would show the failings in

Einstein's reasoning, not to mention the fact the thought experiments cannot actually be conducted and that Einstein ignores things like the conservation of energy. (See below for more).

Einstein's Conception of Relativity Means:

Light travels at a constant velocity independent of its emitter only when that emitter's motion can be described as a constant velocity. In this scenario the Lorentz Transformation occurs and we cannot measure any motion.

If the emitter's (or the observer's- it's relative after all) motion is accelerated, then light is no longer bound by the postulate of Special Relativity and the rules of General Relativity apply and light now is effected by the motion of its emitter (or observer). There is no Lorentz Transformation. This allows light to now act like a physical object, like an apple. Or at least appear to. And in this fashion Einstein claims to show an equivalence between acceleration and gravity itself. Yet he fails to explain this dual nature of light. What mechanism is there for it? How does this relate to his reinstating of the Ether as important to physical theory in 1920, when the General Relativity concept of light is basically the older ballistic or emission theory, which does not need an ether?

A compass or Foucault Pendulum or Gyroscope experiment would show Einstein's thought experiment - that is supposed to prove Equivalence- wrong. As would cutting the rope. (See below)

If we suppose all of this is correct, an assumption that is probably very unwise, we have another problem. The Michelson Morley Experiment cannot be regarded as it is. There can be no Lorentz Transformation and no need for time dilation or length contraction as a result. The reason is that the Earth's motion around the Sun is not considered to be at a constant velocity. As is demonstrated by observation, the Sun does not rise and set at the same time every day. There is a difference between sidereal and solar time.

The mainstream Heliocentric model explains this phenomena as the velocity of the orbit of Earth changes based upon its distance from the Sun.

When we take General Relativity into account we then have curved space time. This means the Earth's orbit is considered to be linear and not curved. It is supposed to be a four dimensional linear reference frame. This allows for the mainstream explanation of the Michelson Morley experiment.

This provides us with the same "Galilean" Reference frame for the Earth that Einstein imagines and uses as a thought experiment to "prove" his ideas about General Relativity.

According to General Relativity if the Galilean frame is accelerated and not a constant velocity then there is no Lorentz Transformation, this is supposed to prove the equivalency between gravity and acceleration. This same idea would then need to be logically applied to the Earth's motion around the Sun and if it is, Special Relativity is shown to not be applicable to any real world situation. Again this assumes General Relativity is correct.

Of course one can simply hand wave this away by claiming such a thing is too small to measure. That the Earth's supposed ever changing velocity in its orbit is something beyond out ability to measure. (This would still seem to invalidate the Lorentz Transformation.) Yet the same apologists would then turn and point to the supposed ability to measure half a proton's distance worth of gravitational ether motion or gravity waves from an event more than a billion light years away. (see: https://en.wikipedia.org/wiki/Gravitational-wave_observatory)

"The ether of the general theory of relativity is a medium which is itself devoid of all mechanical and kinematical qualities, but helps to determine mechanical (and electromagnetic) events." Albert Einstein , Ether & Relativity, 1920

Einstein's "Theories" Are Nothing More Than imaginative Musings

The concept of "Space-Time' is Nothing but Fantasy like a Comic Strip Character

Fantastic Feats

Even the mythic Superman would need the magical aid of his ally Dr. Fate in order to conduct Einstein's famed experiment. This 'thought experiment is nothing but fantasy, it cannot be conducted in reality. How would Einstein's imagined being be able to pull the chest in the first place? What would this being push against? How could it fly in a vacuum? What mechanism does Einstein posit to allow this magical being its ability to propel itself through empty space? Answer: None.

"We imagine a large portion of empty space, so far removed from stars and other appreciable masses, that we have before us approximately the conditions required by the fundamental law of Galilei. It is then possible to choose a Galileian reference-body for this part of space (world), relative to which points at rest remain at rest and points in motion continue permanently in uniform rectilinear motion. As reference-body let us imagine a spacious chest resembling a room with an observer inside who is equipped with apparatus. Gravitation naturally does not exist for this observer. He must fasten himself with strings to the floor, otherwise the slightest impact against the floor will cause him to rise slowly towards the ceiling of the room.

To the middle of the lid of the chest is fixed externally a hook with rope attached, and now a " being " (what kind of a being is immaterial to us) begins pulling at this with a constant force. The chest together with the observer then begin to move "upwards" with a uniformly accelerated motion. In course of time their velocity will reach unheard-of values — provided that we are viewing all this from another reference-body which is not being pulled with a rope." *A. Einstein General Relativity*

"Relying on his knowledge of the gravitational field (as it was discussed in the preceding section), the man in the chest will thus come to the conclusion that he and the chest are in a gravitational field which is constant with regard to time. Of course he will be puzzled for a moment as to why the chest does not fall in this gravitational field. Just then, however, he discovers the hook in the middle of the lid of the chest and the rope which is attached to it, and he consequently comes to the conclusion that the chest is suspended at rest in the gravitational field.

Ought we to smile at the man and say that he errs in his conclusion? I do not believe we ought if we wish to remain consistent; we must rather admit that his mode of grasping the situation violates neither reason nor known mechanical laws. Even though it is being accelerated with respect to the "Galileian space" first considered, we can nevertheless regard the chest as being at rest. We have thus good grounds for extending the principle of relativity to include bodies of reference which are accelerated with respect to each other, and as a result we have gained a powerful argument for a generalised postulate of relativity.

We must note carefully that the possibility of this mode of interpretation rests on the fundamental property of the gravitational field of giving all bodies the same acceleration, or, what comes to the same thing, on the law of the equality of inertial and gravitational mass. If this natural law did not exist, the man in the accelerated chest would not be able to interpret the behaviour of the bodies around him on the supposition of a gravitational field, and he would not be justified on the grounds of experience in supposing his reference-body to be "at rest." *Albert Einstein, General Relativity*

The very beginning of this thought experiment allows us to discern our frame of reference. The imagined experimenter explicitly goes from a condition of 'weightlessness' where he needs to tie himself into place, to one where he seems to be standing in a gravitational field.

"Gravitation naturally does not exist for this observer. He must fasten himself with strings to the floor, otherwise the slightest impact against the floor will cause him to rise slowly towards the ceiling of the room."

"The chest together with the observer then begin to move "upwards" with a uniformly accelerated motion. In course of time their velocity will reach unheard-of values — provided that we are viewing all this from another reference-body which is not being pulled with a rope." A. Einstein General Relativity"

VS

Falling (sensation)

*"A sensation of **falling** occurs when the labyrinth or vestibular apparatus, a system of fluid-filled passages in the inner ear, detects changes in acceleration. This sensation can occur when a person begins to fall, which in terms of mechanics amounts to a sudden acceleration increase from zero to roughly 9.8 m/s2."*

PHYSICS vs METAPHYSICS

physics (n.) 1580s, "natural science," from physic in sense of "natural science." Also see -ics. Based on Latin *physica* (neuter plural), from Greek *ta physika*, literally "the natural things," name of Aristotle's treatise on nature. Specific sense of "science treating of properties of matter and energy" is from 1715.

metaphysics (n.) 1560s, plural of Middle English *metaphisik*, *methaphesik* (late 14c.), "branch of speculation which deals with the first causes of things," from Medieval Latin *metaphysica*, neuter plural of Medieval Greek *(ta) metaphysika*, from Greek *ta meta ta physika* "the (works) after the Physics," title of the 13 treatises which traditionally were arranged after those on physics and natural sciences in Aristotle's writings. The name was given c.70 B.C.E. by Andronicus of Rhodes, and was a reference to the customary ordering of the books, but it was misinterpreted by Latin writers as meaning "the science of what is beyond the physical." See meta- + physics. The word originally was used in English in the singular; plural form predominated after 17c., but singular made a comeback late 19c. in certain usages under German influence.

Proving Einstein Wrong:

PROOF OF THE ROTATION OF THE EARTH: Gyroscopes & *Pendulums*

The Earth is supposed to rotate. The imagined genie pulled chest is not supposed to rotate.

The Earth's rotation is supposed to be able to be detected with a Foucault Pendulum or Gyroscope experiment. This is the mainstream scientific community's opinion. We should expect no such rotation to be discerned in a magical tireless genie pulled elevator.

It's Pronounced "FU-KO"

Einstein's reasoning is that an imagined magical tireless being who need never eat nor take a bathroom break and who can forever maintain a perfectly constant state of acceleration can pull an imagined chest/laboratory in an imaginary area of the Universe that somehow lacks any gravitational influence from any other body. This magical Zero Gravity environment is where the experiment takes place.

The magical being ignores the conservation of energy. This genie can do the impossible in an imagined magical environment. This being is a version of a perpetual motion machine.

"A perpetual motion machine of the first kind produces work without the input of energy. It thus violates the first law of thermodynamics: the law of conservation of energy."

The genie pulls the chest at the same rate as gravity so we cannot tell if we are on Earth or in motion at a constant acceleration. Such perfection would surely be extremely difficult to engineer, it would be impossible if we consider the fact hat this being can never tire nor take a break for food or drink. A rocket could be imagined to replace the genie, but this would be a rocket that could never be refueled and one that would have to maintain a constant acceleration rather than a fixed velocity, something seemingly impossible to build.

If we use a laser level will will be able to see we are in motion as the light beam will bend. Einstein points out to us that we cannot discern whether we are at rest in a gravity field on the Earth or being pulled by a magical genie in a magical environment. We don't wish to argue where he came up with this idea and simply agree with Albert, he is a very nice man after all, and a smart guy.

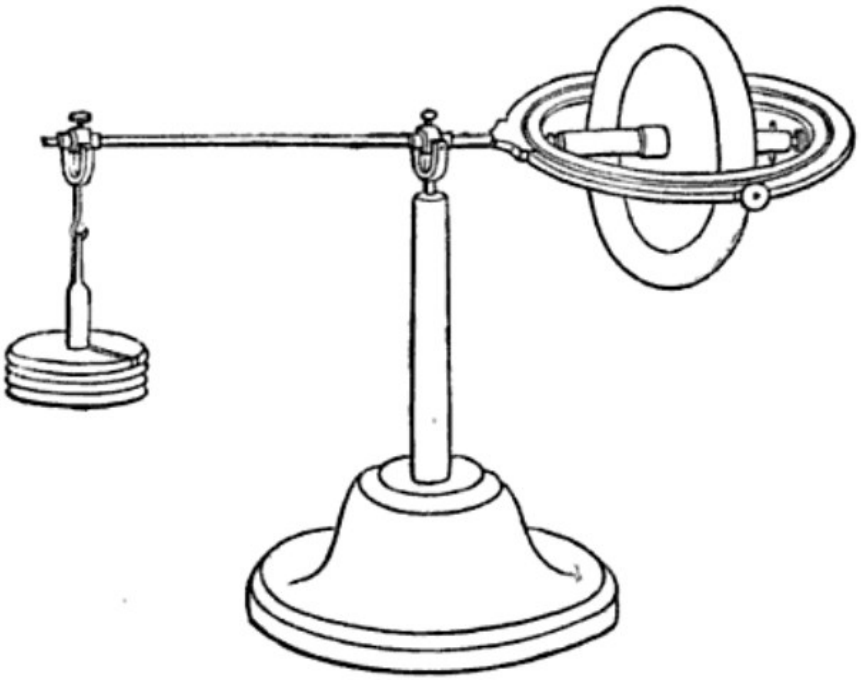
Albert goes on to say we cannot do any experiment that could discern the difference between the two states. We respectfully disagree with our friend.

On Fessel's Gyroscope.

[From the 'Proceedings of the Royal Society,' vol. vii. 1854, pp. 43–48.]

SINCE the announcement of M. Foucault's beautiful experiment which has afforded us a new mechanical proof of the rotation of the earth on its axis, the phenomena of rotary motion have received renewed attention, and many ingenious instruments have been contrived to exhibit and to explain them. One of the most instructive of these is the Gyroscope invented by M. Fessel of Cologne, described in its earlier form in Poggendorff's 'Annalen' for September 1853, and which, with some improvements by Prof. Plücker and some further modifications suggested by myself, I take the present opportunity of bringing before the Royal Society.

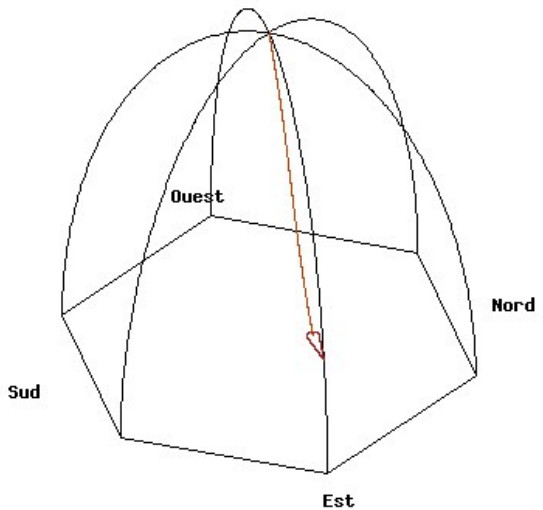
It is thus constructed: a beam is capable of moving freely



The Gyroscope

x2

Below, illustration of the pendulum experiment, by Nbrouard (Own work) [CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0/)], via Wikimedia Commons



imagine an area of space with gravity but no magnetic fields

"On the other hand a part of space may very well be imagined without an electromagnetic field; thus in contrast with the gravitational field, the electromagnetic field seems to be only secondarily linked to the ether, the formal nature of the electromagnetic field being as yet in no way determined by that of gravitational ether. From the present state of theory it looks as if the electromagnetic field, as opposed to the gravitational field, rests upon an entirely new formal motif, as though nature might just as well have endowed the gravitational ether with fields of quite another type, for example, with fields of a scalar potential, instead of fields of the electromagnetic type." Albert Einstein 1920

North is South and South is North

We pull a compass out of our pocket and it points to the North Pole. We explain to Albert that we know we are on the Earth as by his own admission and parameters of the thought experiment, we have to be on the Earth as genies and Zero Gravity environments, far removed from all other bodies, is something that seems to be quite impossible.

Further, we show Einstein our compass and how it points North and he nods, as he tells us we should expect no magnetic field in his imagined environment, Albert even goes on to explain to us that tidal forces would also allow us to discern the difference between the two states. He also explains that the Foucault Pendulum or Gyroscope type experiments would show the difference as well. He then says that we can just ignore all of that as not being important.

We say that sure there is a limited way gravity is like acceleration, but that he is confusing the parrots with all birds.

Looking at the laser level we point out that light is now reliant on the motion of the emitter and light is now acting like a physical body, like the ballistic or emission theory of light.

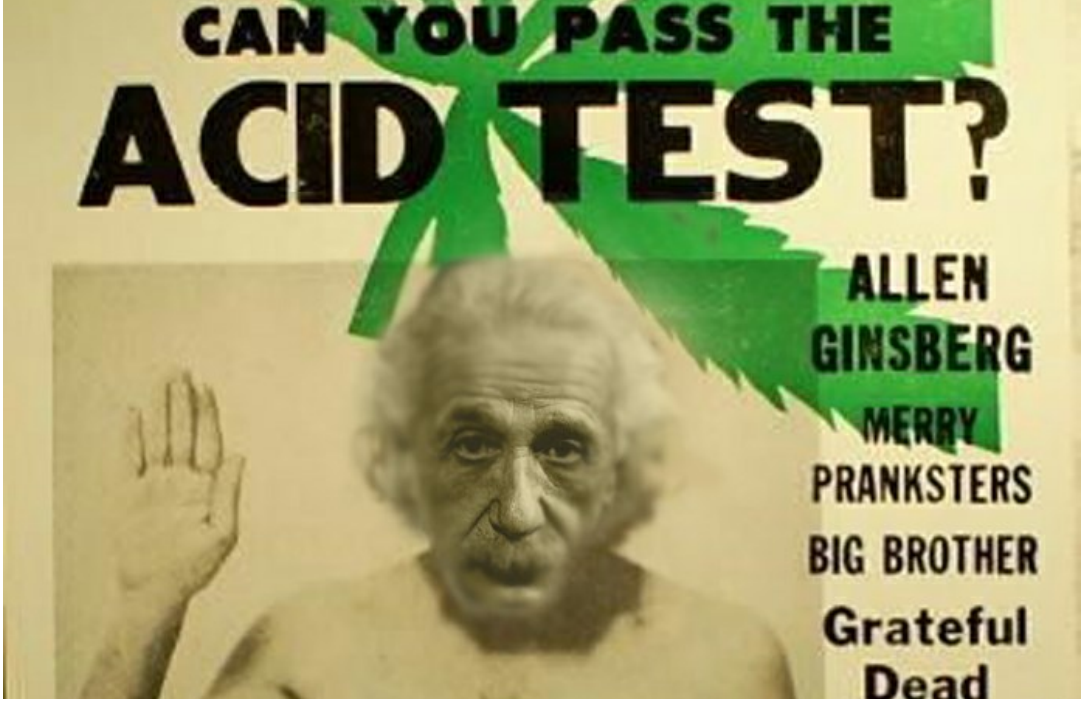
If the light source was outside our chest, then somehow our motion would be effecting the beam's propagation.

Einstein tells us it's the Ether.

http://www-history.mcs.st-and.ac.uk/Extras/Einstein_ether.html

Ether or...

"But on the other hand there is a weighty argument to be adduced in favour of the ether hypothesis. To deny the ether is ultimately to assume that empty space has no physical qualities whatever. The fundamental facts of mechanics do not harmonize with this view. For the mechanical behaviour of a corporeal system hovering freely in empty space depends not only on relative positions (distances) and relative velocities, but also on its state of rotation, which physically may be taken as a characteristic not appertaining to the system in itself. In order to be able to look upon the rotation of the system, at least formally, as something real, Newton objectivises space. Since he classes his absolute space together with real things, for him rotation relative to an absolute space is also something real. Newton might no less well have called his absolute space "Ether"; what is essential is merely that besides observable objects, another thing, which is not perceptible, must be looked upon as real, to enable acceleration or rotation to be looked upon as something real." Albert Einstein 1920.



Clothing Optional

"Recapitulating, we may say that according to the general theory of relativity space is endowed with physical qualities; in this sense, therefore, there exists an ether. According to the general theory of relativity space without ether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense. But this ether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time.

The idea of motion may not be applied to it."

A. Einstein 1920

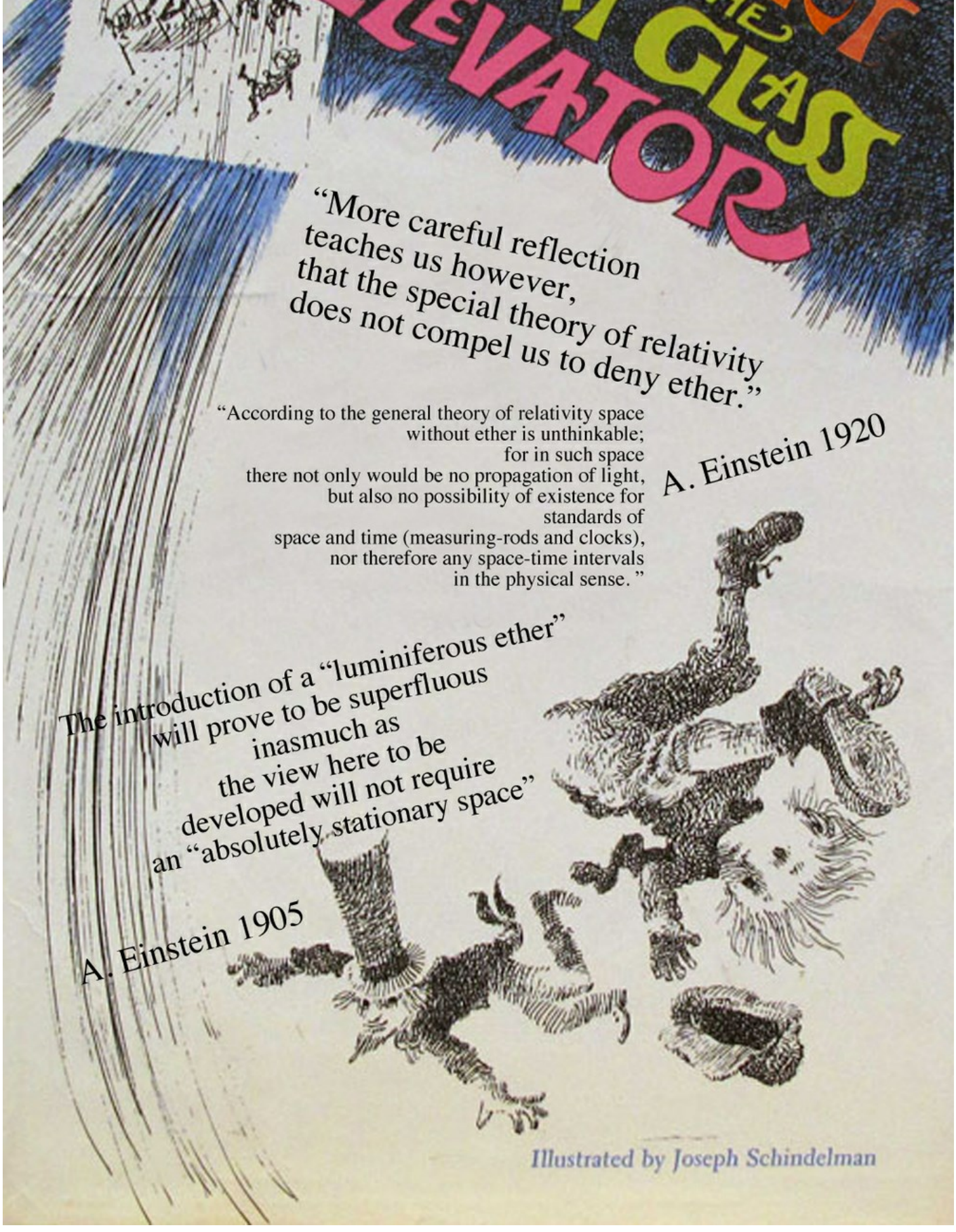
Albert Einstein (1879–1955). Relativity: The Special and General Theory. 1920.

XXII. A Few Inferences from the General Theory of Relativity

"However, we obtain a new result of fundamental importance when we carry out the analogous consideration for a ray of light. With respect to the Galileian reference-body *K,* such a ray of light is transmitted rectilinearly with the velocity *c*. It can easily be shown that the path of the same ray of light is no longer a straight line when we consider it with reference to the accelerated chest (reference-body *K'*). From this we conclude, *that, in general, rays of light are propagated curvilinearly in gravitational fields*. In two respects this result is of great importance. *3*

In the first place, it can be compared with the reality. Although a detailed examination of the question shows that the curvature of light rays required by the general theory of relativity is only exceedingly small for the gravitational fields at our disposal in practice, its estimated magnitude for light rays passing the sun at grazing incidence is nevertheless 1.7 seconds of arc. This ought to manifest itself in the following way. As seen from the earth, certain fixed stars appear to be in the neighbourhood of the sun, and are thus capable of observation during a total eclipse of the sun. At such times, these stars ought to appear to be displaced outwards from the sun by an amount indicated above, as compared with their apparent position in the sky when the sun is situated at another part of the heavens. The examination of the correctness or otherwise of this deduction is a problem of the greatest importance, the early solution of which is to be expected of astronomers. 1 *4*

In the second place our result shows that, according to the general theory of relativity, the law of the constancy of the velocity of light *in vacuo,* which constitutes one of the two fundamental assumptions in the special theory of relativity and to which we have already frequently referred, cannot claim any unlimited validity. A curvature of rays of light can only take place when the velocity of propagation of light varies with position. Now we might think that as a consequence of this, the special theory of relativity and with it the whole theory of relativity would be laid in the dust. But in reality this is not the case. We can only conclude that the special theory of relativity cannot claim an unlimited domain of validity; its result hold only so long as we are able to disregard the influences of gravitational fields on the phenomena (*e.g.* of light)."



Imagine Yourself In A Glass Elevator...

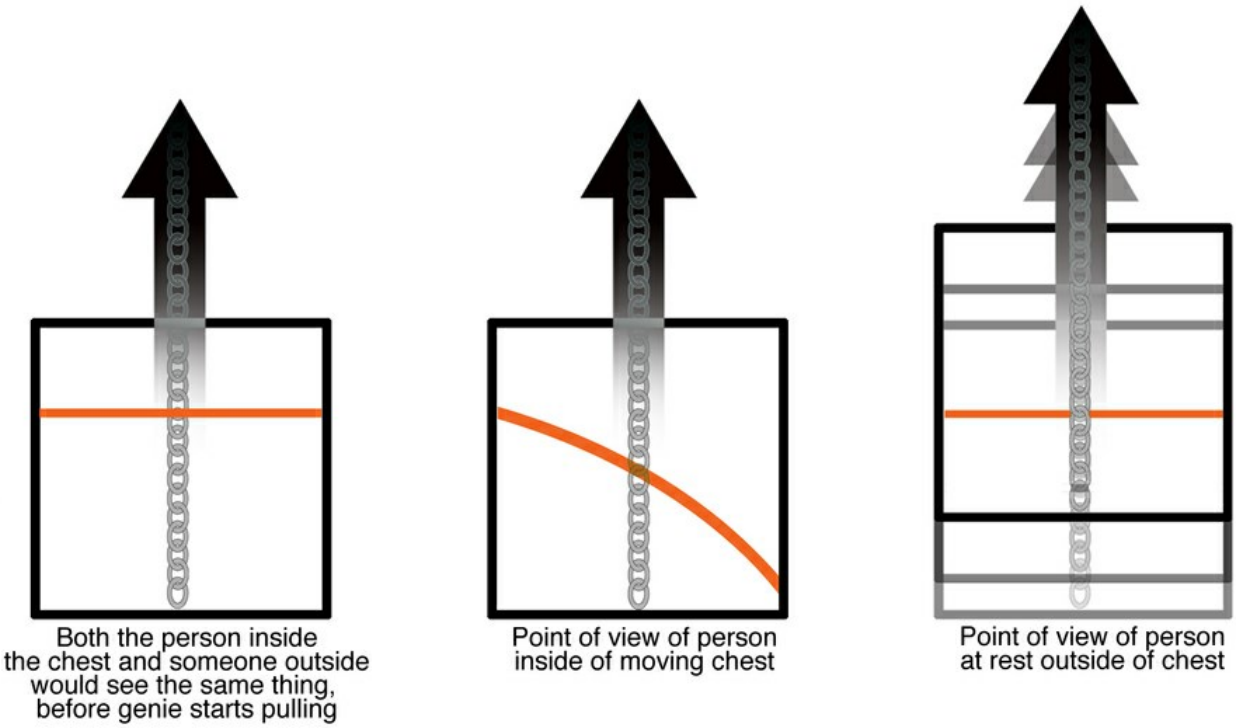
"Einstein embodied this close connection between gravity and acceleration in his Principle of Equivalence: no physical measurement can distinguish a reference frame which is accelerating (relative to an inertial frame) from one which is placed in a uniform gravitational field. Therefore, no experiment inside an elevator can distinguish whether reaction forces (which provide the impression of weight) arise from gravity, acceleration or a mixture of the two."

"If the elevator contains a light source which projects a beam perpendicular to the direction of motion, this beam must appear straight according to external observers (if the elevator has glass walls) and would therefore appear slightly curved according to its occupants, who are accelerating pependicular to its path. We could interpret this curvature as being due to acceleration, but according to the Principle of Equivalence it could also be the effect of a local gravitational field."

http://web.pdx.edu/~egertonr/ph311-12/relativ.htm

Yet "this beam must appear straight according to external observers (if the elevator has glass walls) and would therefore appear slightly curved according to its occupants," cannot be the case.

"To the middle of the lid of the chest is fixed externally a hook with rope attached, and now a " being " (what kind of a being is immaterial to us) begins pulling at this with a constant force. The chest together with the observer then begin to move "upwards" with a uniformly accelerated motion. In course of time their velocity will reach unheard-of values — provided that we are viewing all this from another reference-body which is not being pulled with a rope." A. Einstein General Relativity



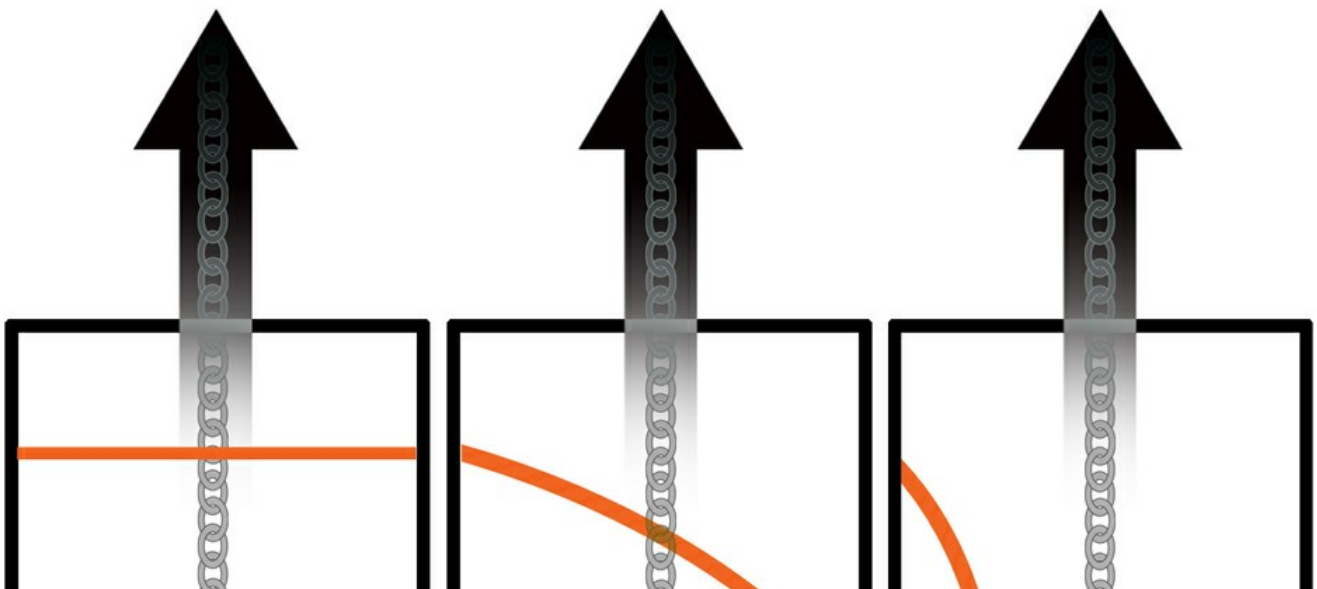
Aether Or: Two Choices

1. The motionless observer see the beam straight and the occupant sees the beam continue to bend further and further down. *This would seem to be the logical conclusion one would make, assuming light to propagate at a constant velocity, irrespective of any motion of its emitter or the 'receiver'.*

or

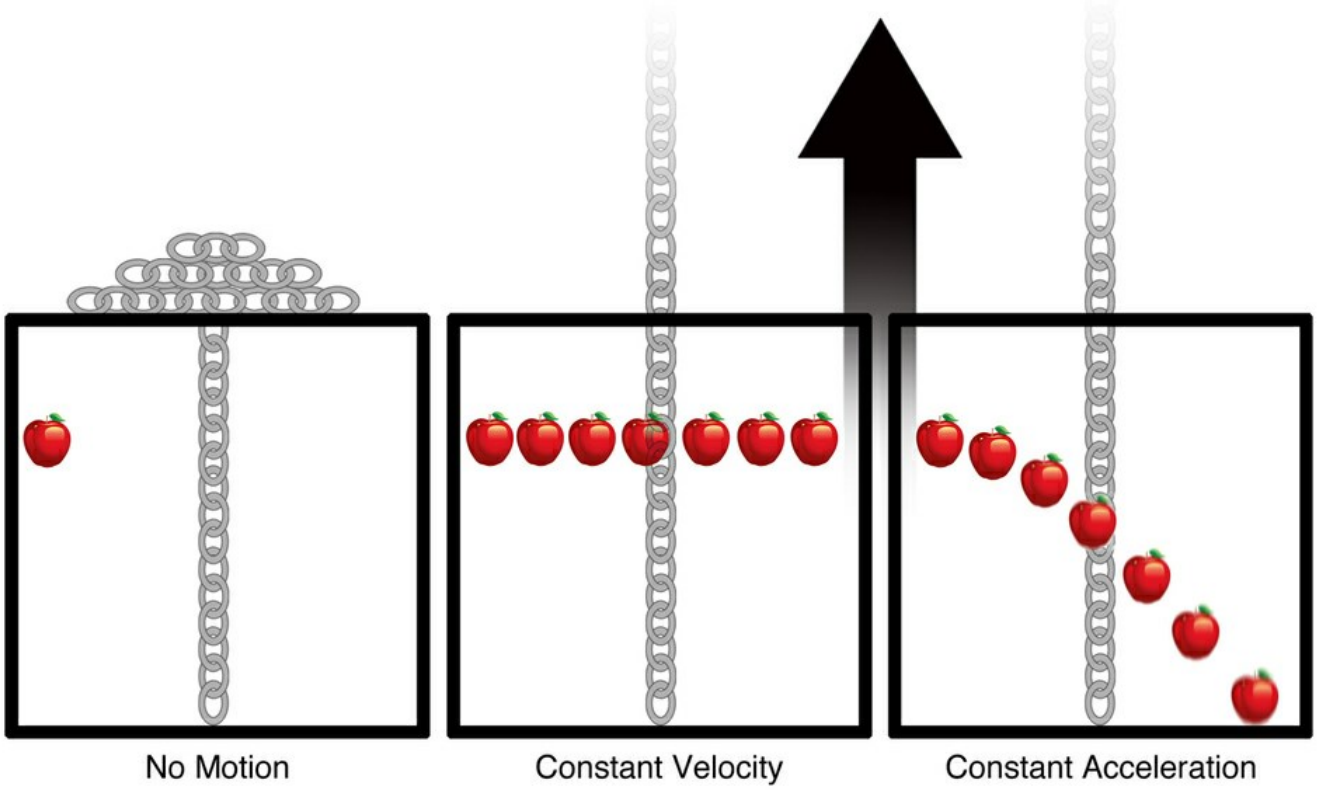
2. The motionless observer sees that the motion of the magically pulled chest causes the ether or 'space-time' to curve. As the occupant sees a consistently arched light beam. This motionless observer sees that the chest is reaching greater and greater velocity as it constantly accelerates at a rate of 9.8 m/s but he also sees that the light beam does not continue to bend further and further down as one might expect, assuming light's velocity to be independent of emitter or receiver, whether there is an ether or not.

Light is Not Supposed To Inherit Velocity From its Emitter or Receiver- It is not supposed to be able to be carried along with the magical genie pulled-laboratory/chest. Light is supposed to be unlike material bodies like apples.



Light is not supposed to travel like a physical object would.

Einstein has light seemingly traveling like an apple would. The light path seems to be effected by inertia when it is not supposed to be. Einstein resorts to an imagined experiment that is impossible to cary out. He then imagines that an accelerated motion can warp (his also imagined concept) of the ether or 'space-time' and proceeds to use this as 'evidence' that gravity can do the same. He then proceeds to claim gravity equivalent to acceleration. This is an example of circular reasoning.



A Fixed Experiment

If we conduct our own version of Einstein's thought experiment and make use of an army of magical beings, and a glass elevator, we can show that it is possible to easily demonstrate the absolute space that this accelerated genie pulled experiment takes place in.

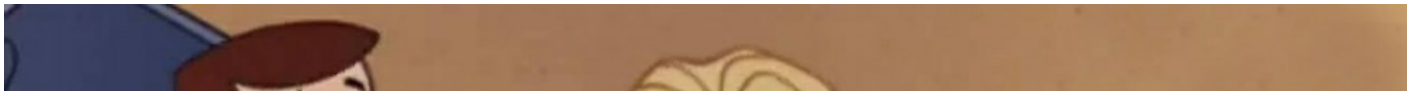
Our army of genies equally space themselves out in the same direction our glass elevator laboratory will be pulled. We equip ourselves with a supply of apples. An infinite supply of apples and an infinite number of genies to match the infinitely accelerated laboratory from Einstein's version of this thought experiment. This army of motionless genies, equally spaced apart will act as our absolute motionless ruler, by which we ca indeed measure our motion by from within our glass elevator as we are accelerated forever, reaching speeds "unimaginable" as Einstein phrases it. We can now perform a simple experiment by repeatedly dropping a series of apples and noting the apple's motion relative to this motionless background of genies. We will see that each apple subsequently dropped is moving at a faster speed relative to the background of motionless genies acting like a ruler. Sure each apple has the same relative accelerated velocity of 9.8m/s, but each subsequent apple dropped has an absolute increasing velocity relative to the background of genies.

By analogy if the Earth is the laboratory then would the "Fixed Stars" not be the background we could measure our motion by? The answer would seem to be no as the stars seem fixed relative to the Earth's solar motion. If the Earth neither rotated nor orbited, we'd notice no motion of the "Fixed Stars".

An Expanding imagination

So it would seem the analogy plies to the entire Universe and not to the Earth itself. In other words the Universe is the enclosed chest. Universal Gravity is equivalent to some kind of imagined magical acceleration.

I Dream of Day Dreaming About Genies



"provided that we are viewing all this from another reference-body which is not being pulled with a rope."

A. Einstein General Relativity

Einstein imagines an Absolute Frame of Rest

This motionless observer would sure seem to be in an absolute frame- by Einstein's own parameters,. no?

The thought experiment is supposed to take place in a zero gravity environment far removed rom any other body. The genie is supposed to begin pulling an enclosed laboratory at a constant acceleration forever. The experiment begins motionless and this motionless environment is even the frame of reference for his second General Relativity thought experiment. This frame is absolutely motionless by Einstein's own reasoning.

So his concept is founded on a thought experiment or daydream that makes use of an absolutely motionless space.

Perhaps Einstein's equivalence is best explained in this context::

https://en.wikipedia.org/wiki/Tests_of_general_relativity#Deflection_of_light_by_the_Sun

The thought experiment would seem to be an example of circular reasoning. What would seem to make more sense would be an actual optical experiment that attempted to measure not a linear velocity that remained constant, but an accelrated motion like gravity.

Something like this perhaps:
https://en.wikipedia.org/wiki/Emission_theory#Interferometry

We wonder what stops the beam from bending further and further down as the genie reaches unimaginable speeds as Einstein claims.

The answer would seem to have to be an ether that was carried along with our chest, (or otherwise distorted by it), in order for the light beam to not end up being seen to be bent further and further down as we approached greater and greater velocity.

The explanation would seem to be that this Ether is immobile relative to the motion of the laboratory. The beam is seen to be left behind as the laboratory accelerates. It is "warped" or curved by the motion of the mass through this medium, 'ether' or 'space-time'. This is equivalent to the warping of supposed 'space-time' due to a massive body like the Sun or a pair of colliding black holes. Both act as accelerated events that could then conceivably be measured with a Michelson Morley Interferometer, by this line of reasoning.

With Einstein's thought experiment, the beam was emitted at a position when the laboratory was moving a certain velocity. As the beams propagates across the space this velocity increases and the beam does not end up looking level, but arched downward. The reasoning would seem to be that this arc does not increase as the relative positions are do the velocity change.

This ether somehow seems to move with the laboratory like a Stokes type ether theory (Aether drag). Or again, somehow the motion is warping the medium like Einstein posits gravity would.

Is a chest pulled by a genie equivalent to being on the Earth?

How Far How Fast?

"Free-falling objects are in a state of acceleration. Specifically, they are accelerating at a rate of 9.8 m/s/s. This is to say that the velocity of a free-falling object is changing by 9.8 m/s every second. If dropped from a position of rest, the object will be traveling 9.8 m/s (approximately 10 m/s) at the end of the first second, 19.6 m/s (approximately 20 m/s) at the end of the second second, 29.4 m/s (approximately 30 m/s) at the end of the third second, etc. Thus, the velocity of a free-falling object that has been dropped from a position of rest is dependent upon the time that it has fallen. The formula for determining the velocity of a falling object after a time of t seconds is

$$vf = g * t$$

(dropped from rest)

where g is the acceleration of gravity. The value for g on Earth is 9.8 m/s/s. The above equation can be used to calculate the velocity of the object after any given amount of time when dropped from rest. Example calculations for the velocity of a free-falling object after six and eight seconds are shown below.

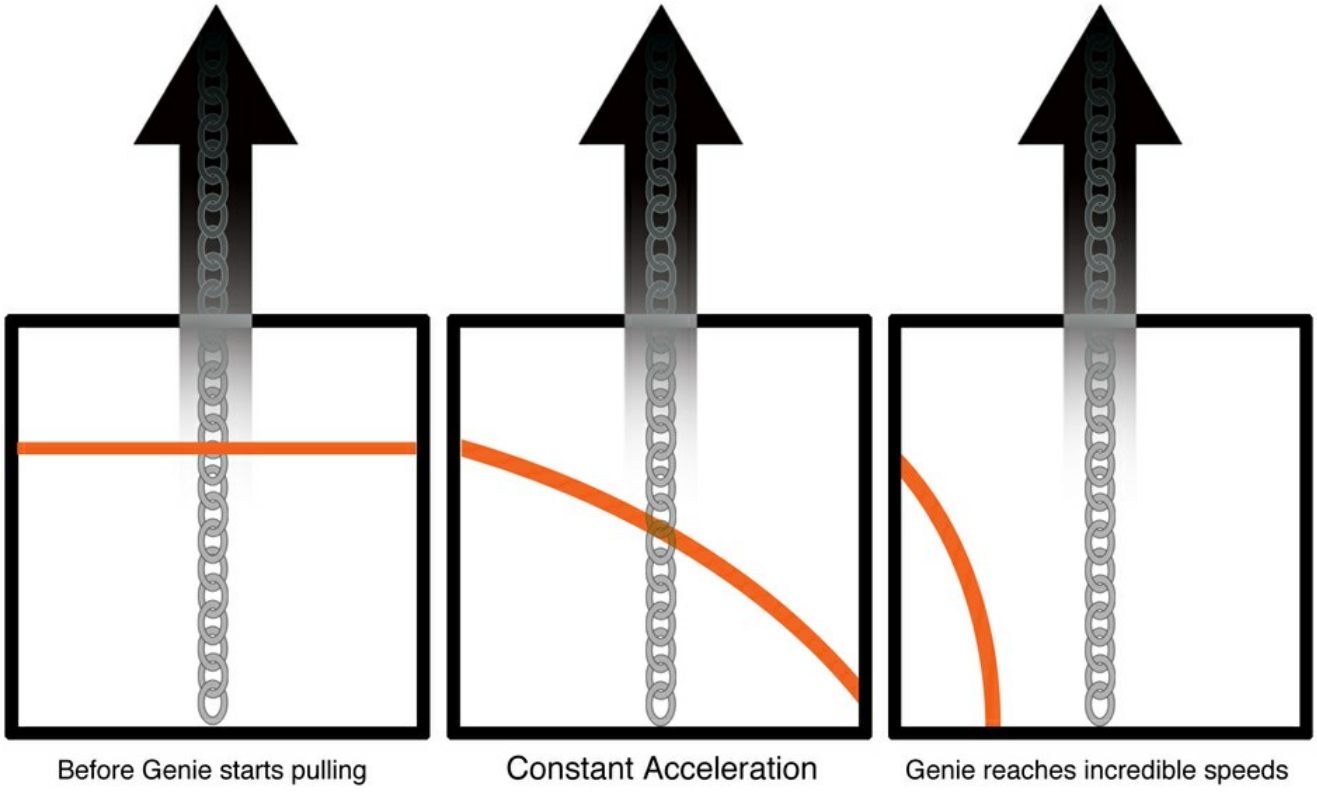
Example Calculations:

At t = 6 s
vf = (9.8 m/s2) * (6 s) = 58.8 m/s

At t = 8 s
vf = (9.8 m/s2) * (8 s) = 78.4 m/s

The distance that a free-falling object has fallen from a position of rest is also dependent upon the time of fall. This distance can be computed by use of a formula; the distance fallen after a time of t seconds is given by the formula.

$$d = 0.5 * g * t2"$$



Speed of Lightning

One has to look at it from the point of view of the 9.8 m's acceleration rather than the fact that the velocity is ever increasing in an absolute sense relative to the imagined motionless observer. Keep in mind this observer is supposed to be in a Zero Gravity environment. This observer is presumed to be absolutely motionless. The actual distance covered will be say 4.9 meters in a second and then 19.6 meters after the second second, and then greater and greater to say something along the lines of hundreds of thousands of meters a second, and then on to unimaginable speeds. This would seem to be the rationale for an Ether Drag type theory, or a warping of the same background medium. This ether somehow responds to the rate of acceleration and not the (absolute) speed relative to the observer at (absolute) rest.

Light is Supposed to be Free from Inertia, it is not supposed to be able to inherit motion from its emitter, nor is the motion of the receiver supposed to effect its motion. It is not supposed to be (like) physical matter.

As the above calculations show, the actual velocity increase so that the distance is ever changing and ever increasing to unimaginable levels. If light's

motion is independent of the emitter, then what is preventing the beam from appearing to curve further and further down as velocity increases? Light is not not supposed to act like physical matter. It is part of the electromagnetic spectrum. Light is not supposed to be like an apple, is it?

Was I Really Going That Fast?

The Thought Experiment Ignores The Concept of Increasing Mass with Increasing Velocity: The Genie Would Have To Slow Down

Albert Einstein in his Theory of General Relativity says:

"If now, as we find from experience, the acceleration is to be independent of the nature and the condition of the body and always the same for a given gravitational field, then the ratio of the gravitational to the inertial mass must likewise be the same for all bodies. By a suitable choice of units we can thus make this ratio equal to unity. We then have the following law: The *gravitational* mass of a body is equal to its *inertial* mass. *5*

It is true that this important law had hitherto been recorded in mechanics, but it had not been *interpreted.* A satisfactory interpretation can be obtained only if we recognise the following fact: *The same* quality of a body manifests itself according to circumstances as "inertia" or as "weight" (lit. "heaviness"). In the following section we shall show to what extent this is actually the case, and how this question is connected with the general postulate of relativity."

If MASS increases with SPEED, Einstein's General Relativity thought experiment is invalid!

This is not the same condition one finds oneself in if one is at rest in the Earth's gravitational field.

Acceleration cannot then be equated with gravity. Equivalence cannot be some kind of Universal truth.

Yet what about the speed limit of the Universe?

What Happened To *E=MC2* and mass increasing with velocity?

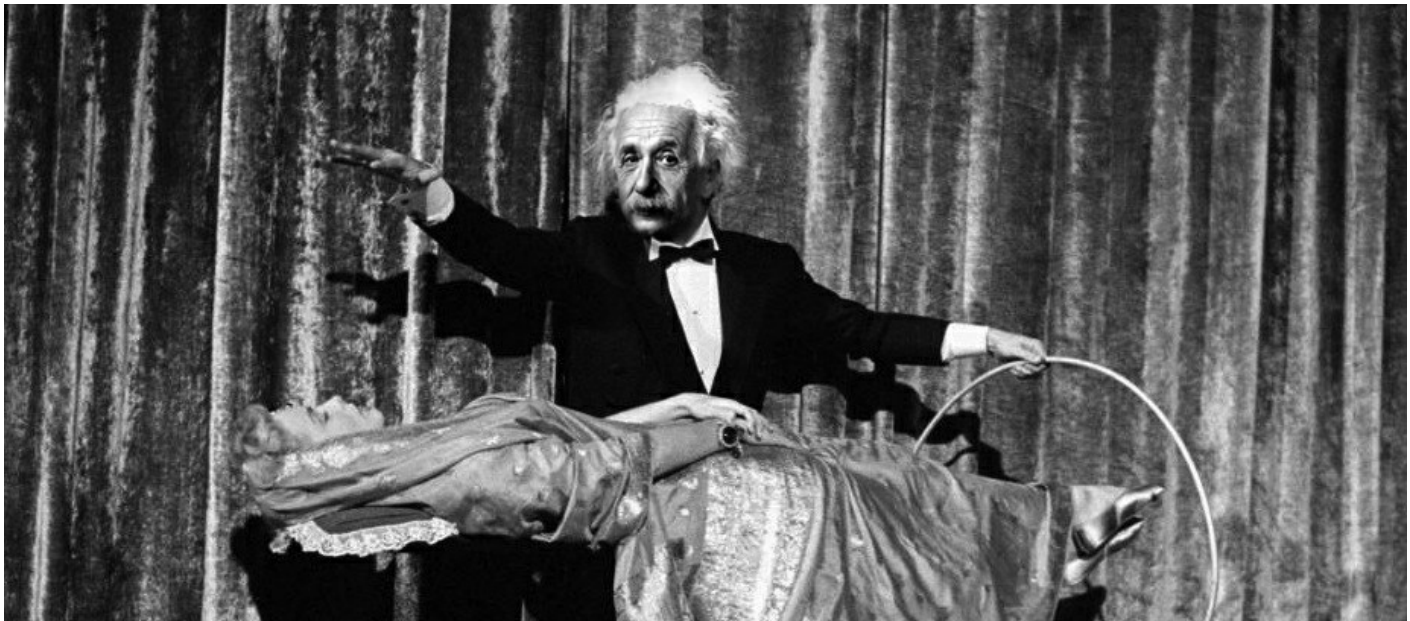
Logically the genie would seem to be limited by these concepts. Relativity is said to be built upon these ideas. The genie would never be able to maintain a constant acceleration by Einstein's own reasoning. The genie and the chest's mass would increase and the famed speed limit would be imposed. Or are we to think the experiment is supposed to be free from this foundational concept? In other words the near ever increasing mass would act as a resistance, unless we ignore this concept. This genie need never rest, by the way, nor does this genie need any source of energy. There is no need to worry about how such an acceleration could possibly be maintained.

In SR light propagates with a constant Velocity independent of the motion of its emitter.

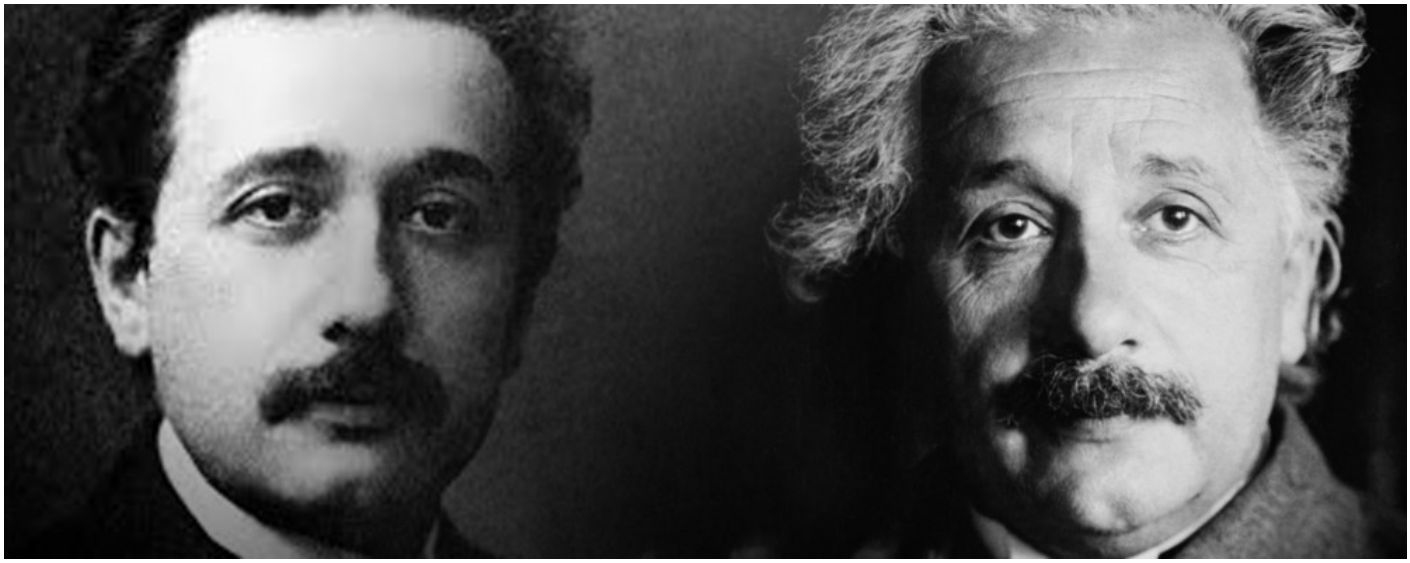
In GR light propagates with a velocity dependent on the motion of the emitter (or the laboratory- it's relative after all).

Presenting The Master Prestidigitator

"Mathiness is a term coined by Paul Romer to label a specific misuse of mathematics in economic analyses. An author committed to the norms of science should use mathematical reasoning to clarify his analyses. On the other hand, "mathiness" is not intended to clarify, but instead to mislead; it is a smokescreen of equations that disguises an ideological agenda set by unrealistic assumptions"



Einstein Debates Einstein: A Twin Paradox in Time



EINSTEIN V EINSTEIN: Einstein at War with himself, in his own words

1905:

"The introduction of a “luminiferous ether” will prove to be superfluous inasmuch as the view here to be developed will not require an “absolutely stationary space” provided with special properties, nor assign a velocity-vector to a point of the empty space in which electromagnetic processes take place."

https://www.fourmilab.ch/etexts/einstein/specrel/www/

superfluous (adj.)

"early 15c. (earlier *superflue*, late 14c.), from Latin *superfluus* "unnecessary," literally "overflowing, running over," from *superfluere* "to overflow," from *super* "over" (see super-) + *fluere* "to flow" (see fluent). Related: *Superfluously*; *superfluousness*."

VS

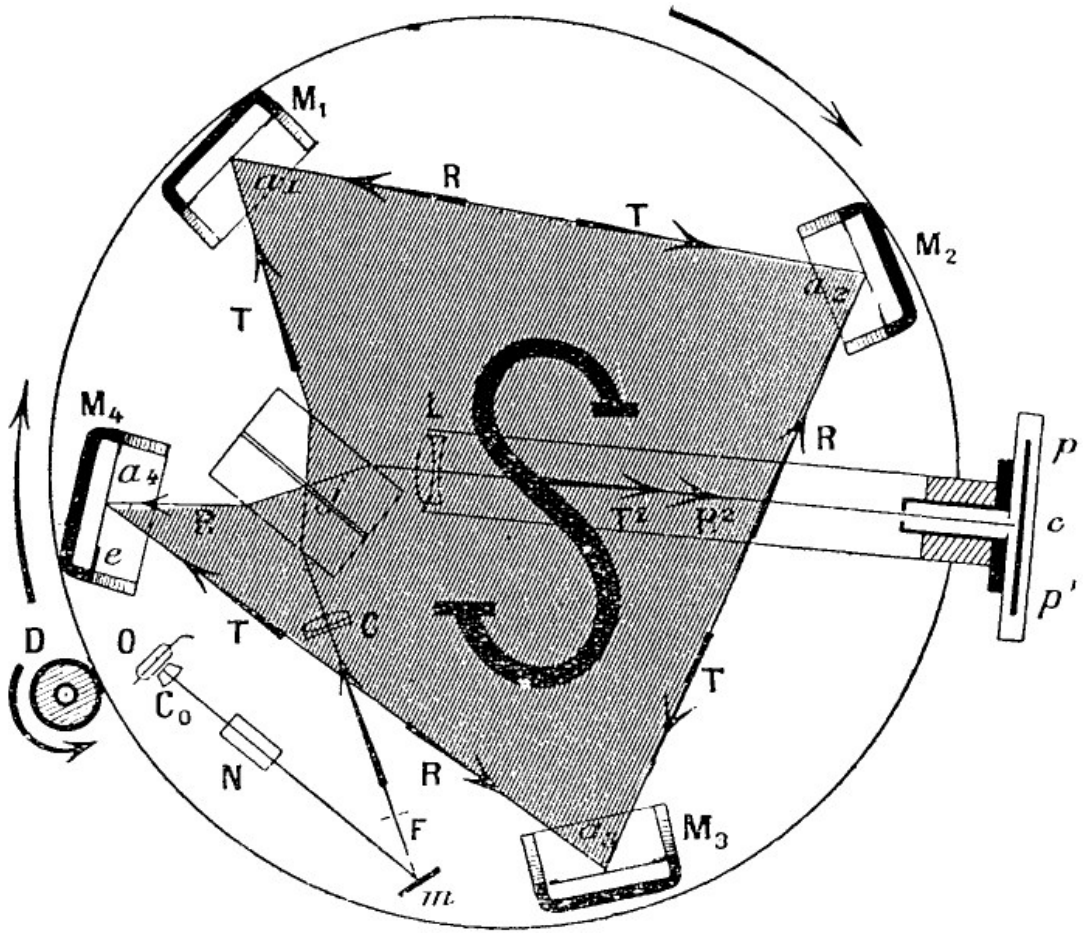
1920:

"Recapitulating, we may say that according to the general theory of relativity space is endowed with physical qualities; in this sense, therefore, there exists an ether. According to the general theory of relativity space without ether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense. But this ether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time. The idea of motion may not be applied to it."

http://www-history.mcs.st-and.ac.uk/Extras/Einstein_ether.html

" According to the relativists, space has a tendency to curvature owing to an inherent property or presence of celestial bodies. Granting a semblance of reality to this fantastic idea, it is still self-contradictory. Every action is accompanied by an equivalent reaction and the effects of the latter are directly opposite to those of the former. Supposing that the bodies act upon the surrounding space causing curvature of the same, it appears to my simple mind that the curved spaces must react on the bodies and, producing the opposite effects, straighten out the curves, Since action and reaction are coexistent, it follows that the supposed curvature of space is entirely impossible. But even if it existed it would not explain the motions of the bodies as observed. Only the existence of a field of force can account for them and its assumption dispenses with space curvature. All literature on this subject is futile and destined to oblivion. So are also all attempts to explain the workings of the universe without recognizing the existence of the ether and the indispensable function it plays in the phenomena."

Nikola Tesla



"S" Marks The Spot

"The Sagnac effect (also called Sagnac interference), named after French physicist Georges Sagnac, is a phenomenon encountered in interferometry that is elicited by rotation. The Sagnac effect manifests itself in a setup called a ring interferometer. A beam of light is split and the two beams are made to follow the same path but in opposite directions. To act as a ring the trajectory must enclose an area. On return to the point of entry the two light beams are allowed to exit the ring and undergo interference. The relative phases of the two exiting beams, and thus the position of the interference fringes, are shifted according to the angular velocity of the apparatus. This arrangement is also called a Sagnac interferometer.

A gimbal mounted mechanical gyroscope remains pointing in the same direction after spinning up, and thus can be used as a rotational reference for an inertial navigation system. With the development of so-called laser gyroscopes and fiber optic gyroscopes based on the Sagnac effect, the bulky mechanical gyroscope is replaced by one having no moving parts in many modern inertial navigation systems. The principles

behind the two devices are different, however. A conventional gyroscope relies on the principle of conservation of angular momentum whereas the sensitivity of the ring interferometer to rotation arises from the invariance of the speed of light for all inertial frames of reference."

The Michelson Gale Pearson Experiment & Sagnac *Do* Disprove the original 1905 Relativity Theory.

Compare the original 1905 text to the Sagnac effect. There is not supposed to be a measurable difference between an interferometer in motion and one at rest. Yet this reproducible experiment shows otherwise. In fact it would seem the way the interferometer experiments work, does shows that one can measure a difference between a state of motion and one of rest. The math itself is based on this idea.

This has to do with the relationship of the emitter to the advancing or receding mirror. *(C+V and C-V) When the interferometer is motionless the path distances forward and back are equal.* ***When in motion the path distances become unequal and the combined path length is shown mathematically to be longer.***

(see the actual experiments and the Lorentz Transformation, linked below)

ON THE ELECTRODYNAMICS OF MOVING BODIES

By A. Einstein
June 30, 1905

"Any ray of light moves in the "stationary" system of co-ordinates with the determined velocity c, whether the ray be emitted by a stationary or by a moving body. Hence:..."

$$\text{velocity} = \frac{\text{light path}}{\text{time interval}}$$

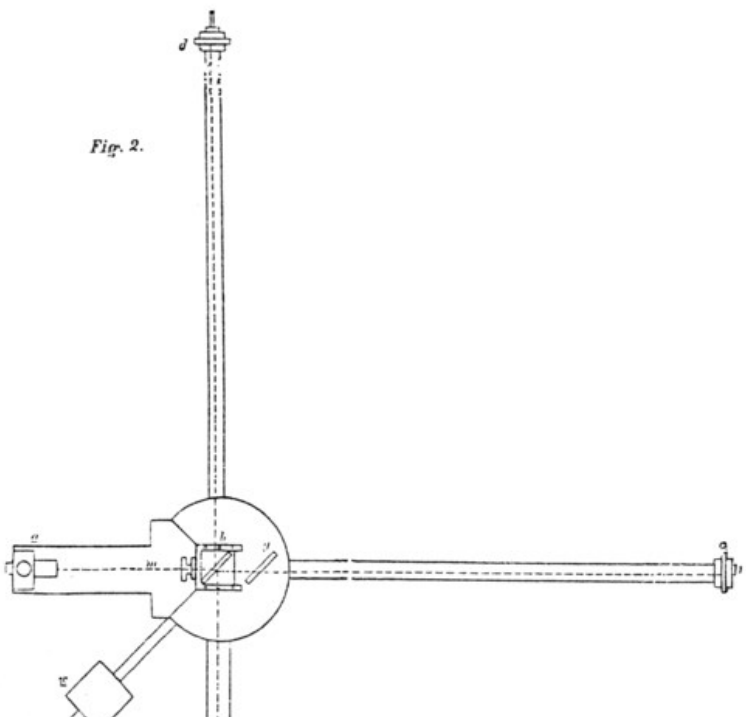
"where time interval is to be taken in the sense of the definition in § 1."

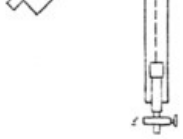
"Let there be given a stationary rigid rod; and let its length be l as measured by a measuring-rod which is also stationary. We now imagine the axis of the rod lying along the axis of x of the stationary system of co-ordinates, and that a uniform motion of parallel translation with velocity v along the axis of x in the direction of increasing x is then imparted to the rod. We now inquire as to the length of the moving rod, and imagine its length to be ascertained by the following two operations:—

(a) The observer moves together with the given measuring-rod and the rod to be measured, and measures the length of the rod directly by superposing the measuring-rod, in just the same way as if all three were at rest.

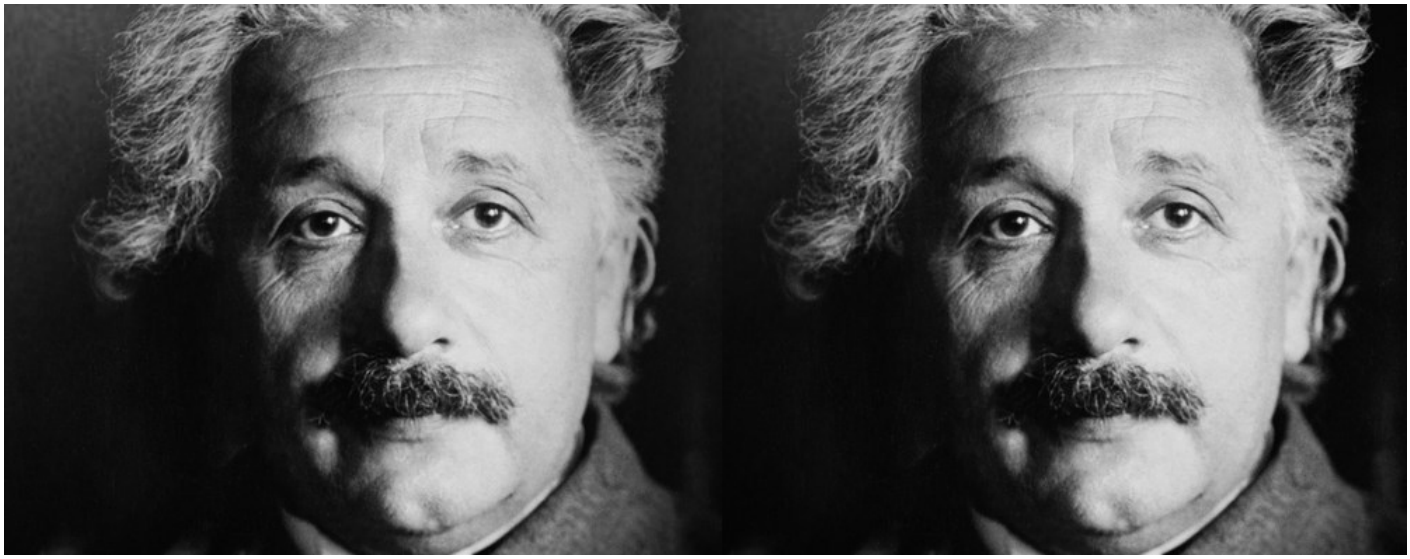
(b) By means of stationary clocks set up in the stationary system and synchronizing in accordance with § 1, the observer ascertains at what points of the stationary system the two ends of the rod to be measured are located at a definite time. The distance between these two points, measured by the measuring-rod already employed, which in this case is at rest, is also a length which may be designated "the length of the rod."

"In accordance with the principle of relativity the length to be discovered by the operation (a)—we will call it "the length of the rod in the moving system"—must be equal to the length l of the stationary rod." A. Einstein 1905





By this reasoning there should be no "Twin Paradox".



"All inertial frames are in a state of constant, rectilinear motion with respect to one another; an accelerometer moving with any of them would detect zero acceleration. Measurements in one inertial frame can be converted to measurements in another by a simple transformation (the Galilean transformation in Newtonian physics and the Lorentz transformation in special relativity). In general relativity, in any region small enough for the curvature of spacetime and tidal forces to be negligible, one can find a set of inertial frames that approximately describe that region."

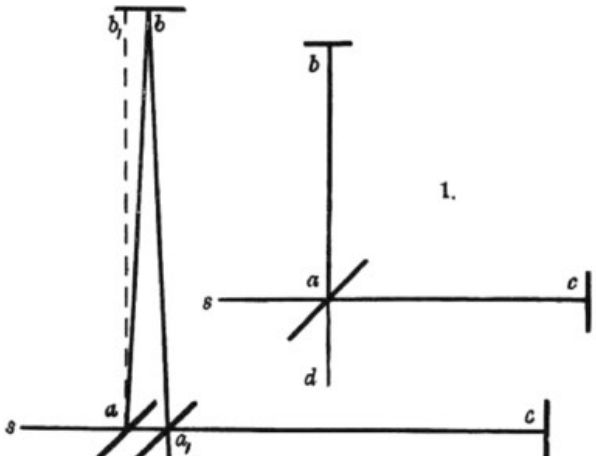
As if The Earth Was Flat

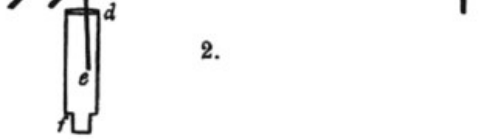
The transverse arm of the Michelson Morley interferometer is considered to travel less distance than the longitudinal arm of the apparatus. Length contraction would seem to only apply to the longitudinal arm. Time dilation would then seem to apply to both. These mathematical corrections explain how such an experiment cannot discern between being at rest or being in motion.

Light seems to travel along with the transverse arm (represented by the a-b-d triangular path on our left, in the illustration below) of the interferometer apparatus, as if the Ether moved with the Earth like a the Stokes or Aether Drag theory posits. This seems to be ignored by Lorentz, Einstein and others. Time dilation cannot explain this and neither can length contraction.

An unmoving Earth or an Aether Drag would explain the "null" result, which supposes light is carried along with the interferometer's transverse (*path aba-e*) arm.

This inconvenient fact is ignored. Light is carried along with the interferometer arm, there is no angle of incidence as the experiment is considered to take place in a Galilean inertia frame, which is linear in nature. This would seem to contradict the independent nature of the velocity of light, if an ether medium is ignored. Light propagating at a constant velocity independent of the motion of its emitter describes a wave in medium and not a particle.





The purpose of the famed ‘ad hoc’ explanation that would come to be known as the Lorentz Transformation, is to mathematically show how an interferometer in motion cannot be distinguished from one at rest. The concept of the light clock would seem to derive from the Michelson Morley experiment itself.

If one considers Einstein's Special Relativity, there would seem to be a contradiction in reasoning:

"In accordance with the principle of relativity the length to be discovered by the operation (a)—we will call it “the length of the rod in the moving system”—must be equal to the length l of the stationary rod."

Time dilation would have to apply to both arms and yet the length contraction can only apply to one arm. If the longitudinal arm, the arm that is parallel to direction of motion, length contracts so its measure is the same as if it was motionless, what effect could time dilation have? If time dilation had an effect that modifies the measurement then would this not further alter the longitudinal arm resulting in unequal path lengths and a fringe shift? Perhaps we are to simply assume that time dilation and length contraction just magically work themselves out.

The development of time dilation and length contraction is the subject of another article, and something worth reading up on. If one accepts the 'ad hoc' explanation, then there should be no “Twin Paradox”.

ORIGINAL EXPERIMENTS AND PAPERS:

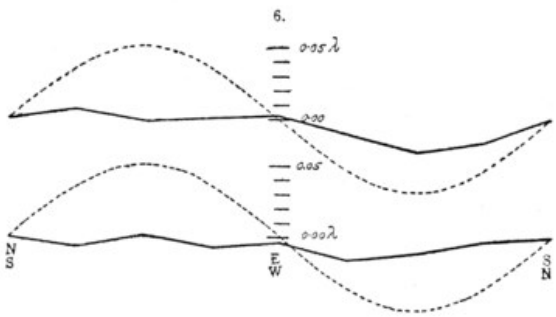
see: https://www.fourmilab.ch/etexts/einstein/specrel/www/

see also: https://en.wikipedia.org/wiki/Length_contraction

https://en.wikisource.org/wiki/The_Relative_Motion_of_the_Earth_and_the_Luminiferous_Ether

https://en.wikisource.org/wiki/On_the_Relative_Motion_of_the_Earth_and_the_Luminiferous_Ether

The idea is that no motion could be detected with an optical interferometer experiment, no matter how it was turned relative to the ether.



Actual vs Predicted - Michelson Morley Results, above. Dotted lines represent the predicted results and the solid lines represent the actual results which were famously considered as a 'null' result.

The Velocity of Light is Independent of The Velocity of The Source

"Albert Abraham Michelson (1913) and Quirino Majorana (1918/9) conducted interferometer experiments with resting sources and moving mirrors (and vice versa), and showed that there is no source dependence of light speed in air. Michelson's arrangement was designed to distinguish between three possible interactions of moving mirrors with light: (1) "the light corpuscles are reflected as projectiles from an elastic wall", (2) "the mirror surface acts as a new source", (3) "the velocity of light is independent of the velocity of the source". His results were consistent with source independence of light speed.[24] Majorana analyzed the light from moving sources and mirrors using an unequal arm Michelson interferometer that was extremely sensitive to wavelength changes. Emission theory asserts that Doppler shifting of light from a moving source represents a frequency shift with no shift in wavelength. Instead, Majorana detected wavelength changes inconsistent with emission theory.[25][26]"
https://en.wikipedia.org/wiki/Emission_theory#Interferometry

The Famed Lorentz Transformation Relies on the Existence of The Aether

How then could Albert Einstein get rid of this medium?

Poincare, Lorentz & Fitzgerald Transform The Aether

"Lorentz (1892–1904) and Larmor (1897–1900), who believed the luminiferous ether hypothesis, also looked for the transformation under which Maxwell's equations are invariant when transformed from the ether to a moving frame. They extended the FitzGerald–Lorentz contraction hypothesis and found out

that the time coordinate has to be modified as well ("local time"). Henri Poincaré gave a physical interpretation to local time (to first order in v/c) as the consequence of clock synchronization, under the assumption that the speed of light is constant in moving frames.[5] Larmor is credited to have been the first to understand the crucial time dilation property inherent in his equations.[6]

In 1905, Poincaré was the first to recognize that the transformation has the properties of a mathematical group, and named it after Lorentz.[7] Later in the same year Albert Einstein published what is now called special relativity, by deriving the Lorentz transformation under the assumptions of the principle of relativity and the constancy of the speed of light in any inertial reference frame, and by abandoning the mechanical aether."

The Velocity of Light being Independent of The Velocity of The Source Logically Describes a Wave in a Medium (Ether).

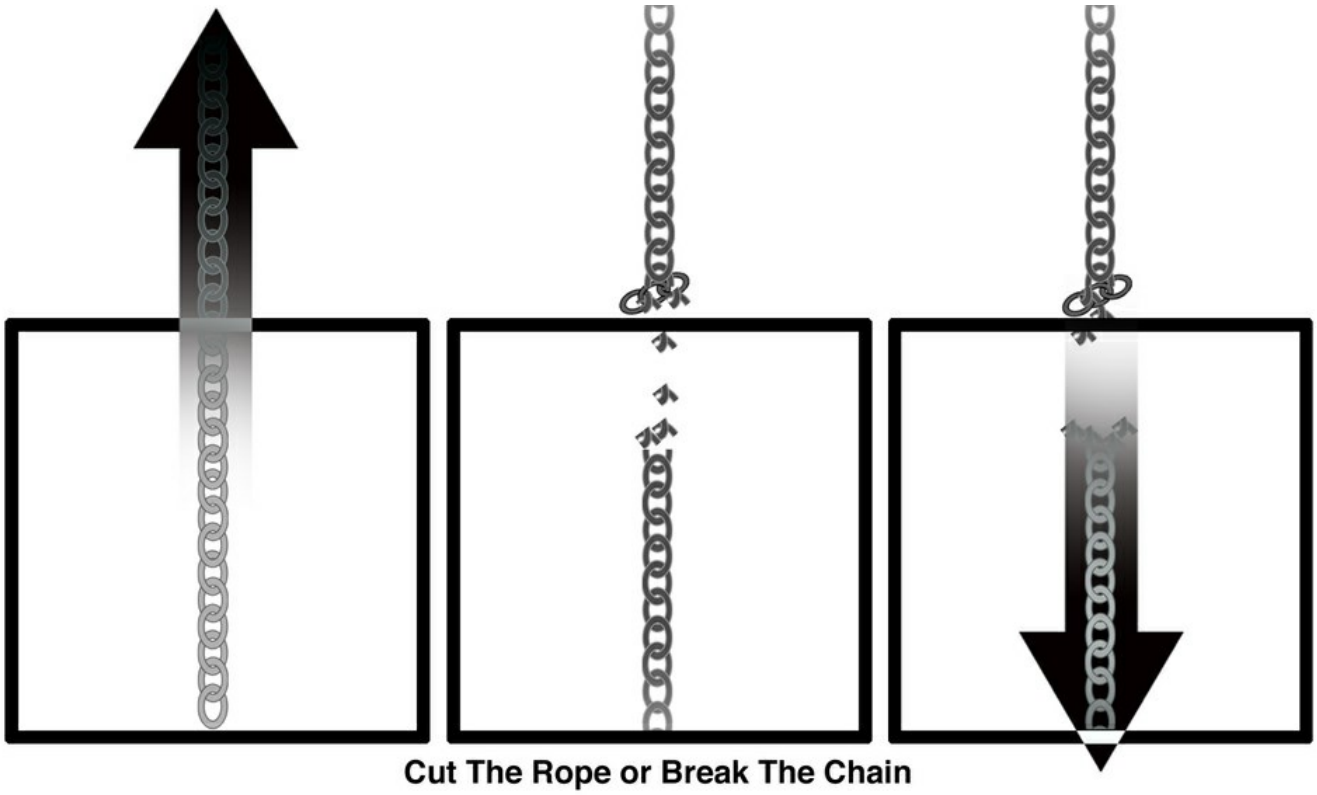
https://en.wikipedia.org/wiki/Lorentz_transformation

Epilogue: Breaking The Chain or Cutting the Rope

"Just then, however, he discovers the hook in the middle of the lid of the chest and the rope which is attached to it, and he consequently comes to the conclusion that the chest is suspended at rest in the gravitational field."
Albert Einstein, General Relativity.
http://www.bartleby.com/173/20.html

We cut the rope and as we fall towards the Earth's surface we hope we aren't too far up or we might get hurt.

In one situation we will strike the surface of the Earth and in the other we would be in a seeming state of free fall that would last forever. We would be able to discern by physical experiment if we were in an imagined Zero gravity environment or on the surface of the Earth.

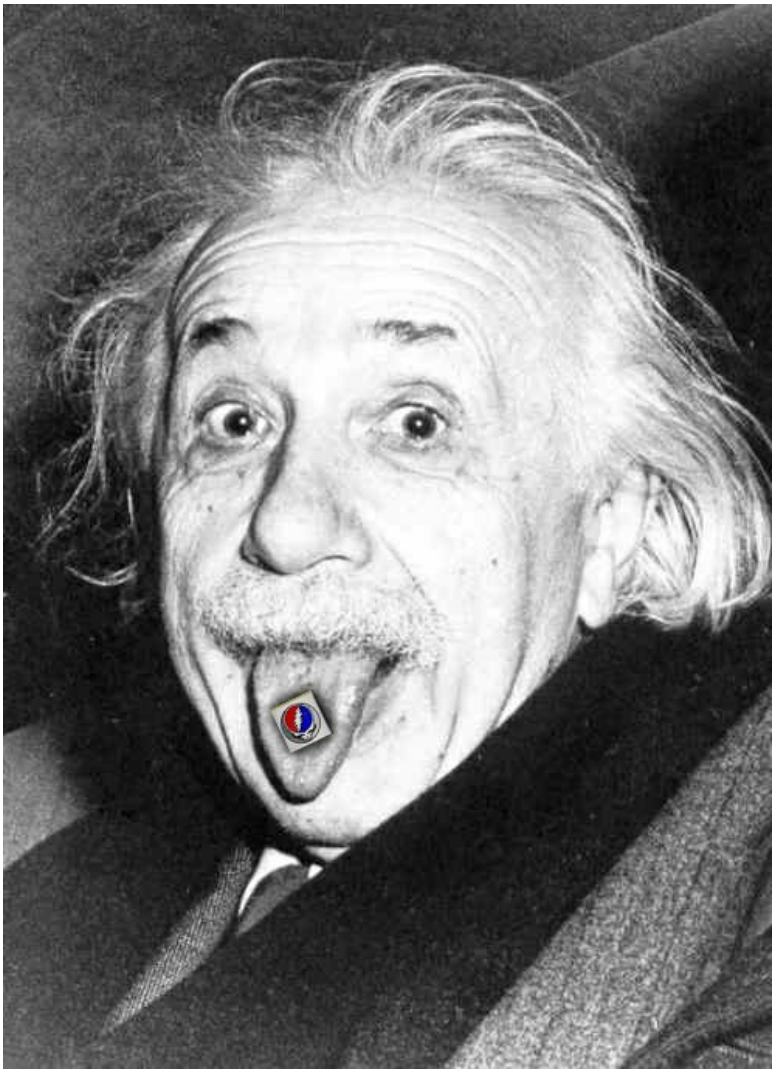


Let's Get Metaphysical: A Coffee Cup Proves Einstein Wrong

If I am drinking a cup of coffee at rest at the train station and you are doing the same on the train that is pulling into the station, and that train comes to an abrupt halt, only one of us will have spilled coffee and that will be you not me.

"We can now appreciate why that argument is not convincing, which we brought forward against the general principle of relativity at the end of Section XVIII. It is certainly true that the observer in the railway carriage experiences a jerk forwards as a result of the application of the brake, and that he recognises in this the non-uniformity of motion (retardation) of the carriage. But he is compelled by nobody to refer this jerk to a "real" acceleration (retardation) of the carriage. He might also interpret his experience thus: "My body of reference (the carriage) remains permanently at rest. With reference to it, however, there exists (during the period of application of the brakes) a gravitational field which is directed forwards and which is variable with respect to time. Under the influence of this field, the embankment together with the earth moves non-uniformly in such a manner that their original velocity in the backwards direction is continuously reduced." Albert Einstein, General Relativity

This is an assumption based on the Newtonian Bucket experiment which fails to recognize that all that is needed to explain this phenomena is understanding relative motion and inertia. The above thought experiment shows the limitations and circular reasoning inherent in such speculations. The liquid in the bucket need not be concerned with the fixed stars or any other body. The sides of the bucket are what keep the liquid from flying off in what would otherwise be a straight line. Centrifugal and centrfical forces explain everything fine without any metaphysical theorizing needed.



It's Electromagnetic

"Classically, electromagnetic radiation consists of **electromagnetic waves**, which are synchronized oscillations of electric and magnetic fields that propagate at the speed of light through a vacuum. The oscillations of the two fields are perpendicular to each other and perpendicular to the direction of energy and wave propagation, forming a transverse wave. Electromagnetic waves can be characterized by either the frequency or wavelength of their oscillations to form the electromagnetic spectrum, which includes, in order of increasing frequency and decreasing wavelength: radio waves, microwaves, infrared radiation, visible light, ultravioletradiation, X-rays and gamma rays."

Measuring Light

"A **fringe shift** is most often referred to in interferometry experiments such as the Michelson-Morley. It is the behavior of a pattern of "fringes" when the phase relationship between the component sources change.

A fringe pattern can be created in a number of ways but the stable fringe pattern found in the Michelson type interferometers is caused by the separation of the original source into two separate beams and then recombining them at differing angles of incidence on a viewing surface.

The interaction of the waves on a viewing surface alternates between constructive interference and destructive interference causing alternating lines of dark and light. In the example of a Michelson Interferometer, a single fringe represents one wavelength of the source light and is measured from the center of one bright line to the center of the next. The physical width of a fringe is governed by the difference in the angles of incidence of the component beams of light, but regardless of a fringe's physical width, it still represents a single wavelength of light."

The Faraday Effect

"By 1845, it was known through the work of Fresnel, Malus, and others that different materials are able to modify the direction of polarization of light when appropriately oriented,[3] making polarized light a very powerful tool to investigate the properties of transparent materials. Faraday firmly believed that light was an electromagnetic phenomenon, and as such should be affected by electromagnetic forces. He spent considerable effort looking for evidence of electric forces affecting the polarization of light through what are now known as electro-optic effects, starting with decomposing electrolytes. However, his experimental methods were not sensitive enough, and the effect was only measured thirty years later by John Kerr.[4]

Faraday then attempted to look for the effects of magnetic forces on light passing through various substances. After several unsuccessful trials, he happened to test a piece of "heavy" glass, containing traces of lead, that he had made during his earlier work on glass manufacturing.[5] Faraday observed that when a beam of polarized light passed through the glass in the direction of an applied magnetic force, the polarization of light rotated by an angle that was proportional to the strength of the force. He was later able to reproduce the effect in several other solids, liquids, and gases by procuring stronger electromagnets.[4]

The discovery is well documented in Faraday's daily notebook, which has since been published.[6] On 13 Sept. 1845, in paragraph #7504, under the rubric *Heavy Glass*, he wrote:

> … **BUT**, when the contrary magnetic poles were on the same side, *there was an effect produced on the polarized ray*, and thus magnetic force and light were proved to have relation to each other. …
>
> — Faraday, Paragraph #7504, Daily notebook

He summarized the results of his experiments on 30 Sept. 1845, in paragraph #7718, famously writing:

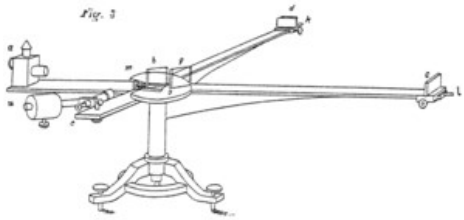
> … Still, I have at last succeeded in illuminating a magnetic curve or line of force, and in magnetizing a ray of light. …
>
> — Faraday, Paragraph #7718, Daily notebook"

were a bar magnetplaced at that angle at the center of the Earth. Unlike a bar magnet, however, Earth's magnetic field changes over time because it is generated by a geodynamo (in Earth's case, the motion of molten iron alloys in its outer core).

The North and South magnetic poles wander widely, but sufficiently slowly for ordinary compasses to remain useful for navigation. However, at irregular intervals averaging several hundred thousand years, the Earth's field reverses and the North and South Magnetic Poles relatively abruptly switch places. These reversals of the geomagnetic poles leave a record in rocks that are of value to paleomagnetists in calculating geomagnetic fields in the past. Such information in turn is helpful in studying the motions of continents and ocean floors in the process of plate tectonics.

The magnetosphere is the region above the ionosphere and extends several tens of thousands of kilometers into space, protecting the Earth from the charged particles of the solar wind and cosmic rays that would otherwise strip away the upper atmosphere, including the ozone layer that protects the Earth from harmful ultraviolet radiation."

M&M's

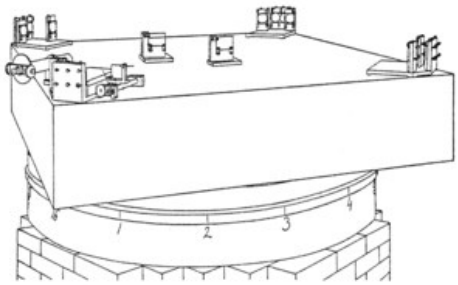


The Relative Motion of the Earth and the Luminiferous Ether (1881)

"Michelson had a solution to the problem of how to construct a device sufficiently accurate to detect aether flow. In 1877, while teaching at his alma mater, the United States Naval Academy in Annapolis, Michelson conducted his first known light speed experiments as a part of a classroom demonstration. In 1881, he left active U.S. Naval service while in Germany concluding his studies. In that year, Michelson used a prototype experimental device to make several more measurements.

The device he designed, later known as a Michelson interferometer, sent yellow light from a sodium flame (for alignment), or white light (for the actual observations), through a half-silvered mirror that was used to split it into two beams traveling at right angles to one another. After leaving the splitter, the beams traveled out to the ends of long arms where they were reflected back into the middle by small mirrors. They then recombined on the far side of the splitter in an eyepiece, producing a pattern of constructive and destructive interference whose transverse displacement would depend on the relative time it takes light to transit the longitudinal *vs*. the transverse arms. If the Earth is traveling through an aether medium, a beam reflecting back and forth parallel to the flow of aether would take longer than a beam reflecting perpendicular to the aether because the time gained from traveling downwind is less than that lost traveling upwind. Michelson expected that the Earth's motion would produce a fringe shift equal to 0.04 fringes—that is, of the separation between areas of the same intensity. He did not observe the expected shift; the greatest average deviation that he measured (in the northwest direction) was only 0.018 fringes; most of his measurements were much less. His conclusion was that Fresnel's hypothesis of a stationary aether with partial aether dragging would have to be rejected, and thus he confirmed Stokes' hypothesis of complete aether dragging.[4]

However, Alfred Potier (and later Hendrik Lorentz) pointed out to Michelson that he had made an error of calculation, and that the expected fringe shift should have been only 0.02 fringes. Michelson's apparatus was subject to experimental errors far too large to say anything conclusive about the aether wind. Definitive measurement of the aether wind would require an experiment with greater accuracy and better controls than the original. Nevertheless, the prototype was successful in demonstrating that the basic method was feasible..."



"**The Michelson–Morley experiment was performed over the spring and summer of 1887** by Albert A. Michelson and Edward W. Morley at what is now Case Western Reserve University in Cleveland, Ohio, and published in November of the same year.[1] It compared the speed of light in perpendicular directions, in an attempt to detect the relative motion of matter through the stationary luminiferous aether ("aether wind"). The result was negative, in that the expected difference between the speed of light in the direction of movement through the presumed aether, and the speed at right

angles, was found not to exist; this result is generally considered to be the first strong evidence against the then-prevalent aether theory, and initiated a line of research that eventually led to special relativity, which rules out a stationary aether.[A 1] The experiment has been referred to as "the moving-off point for the theoretical aspects of the Second Scientific Revolution"

Faster Than A Speeding Photon

What is the Matter?

"Before the 20th century, the term matter included ordinary matter composed of atoms and excluded other energy phenomena such as light or sound. This concept of matter may be generalized from atoms to include any objects having mass even when at rest, but this is ill-defined because an object's mass can arise from its (possibly massless) constituents' motion and interaction energies. Thus, matter does not have a universal definition, nor is it a fundamental concept in physics today. Matter is also used loosely as a general term for the substance that makes up all observable physical objects.

All the objects from everyday life that we can bump into, touch or squeeze are composed of atoms. This atomic matter is in turn made up of interacting subatomic particles—usually a nucleus of protons and neutrons, and a cloud of orbiting electrons. Typically, science considers these composite particles matter because they have both rest mass and volume. By contrast, massless particles, such as photons, are not considered matter, because they have neither rest mass nor volume."

See also: The Evolution of Matter

See Also: The Evolution of Forces

Oh, It's a "Gravitational Ether", I get it Now!

Or is it? ***" The electromagnetic fields appear as ultimate, irreducible realities,*** *and at first it seems superfluous to postulate a homogeneous, isotropic ether-medium, and to envisage electromagnetic fields as states of this medium."* Albert Einstein 1920, Ether Speech.

"Ultimate irreducible realities" that Einstein himself claims he can imagine to NOT exist, unlike his concept of the Gravitational field.

Einstein seems to have very contradictory ideas, this is not an example of clear thinking. For example, if electromagnetic fields are ultimate irreducible realities, would that not be the same thing as the concept of the medium for such fields, the ether itself? Waves cannot just wave themselves, something has to wave. Einstein would seem to be stating that a wave can wave itself, that a verb can exist without a noun. 'Energy' can now be absurdly regarded as a physical substance and not a concept or term representing the amount of work a physical system can do, or representing motion.

Einstein Says: imagine an area of space with gravity but no magnetic fields

"On the other hand a part of space may very well be imagined without an electromagnetic field; thus in contrast with the gravitational field, the electromagnetic field seems to be only secondarily linked to the ether, the formal nature of the electromagnetic field being as yet in no way determined by that of gravitational ether. From the present state of theory it looks as if the electromagnetic field, as opposed to the gravitational field, rests upon an entirely new formal motif, as though nature might just as well have endowed the ***gravitational ether*** *with fields of quite another type, for example, with fields of a scalar potential, instead of fields of the electromagnetic type."* ***Albert Einstein 1920 Ether and Relativity Speech****, see below for full text.*

Albert Einstein can imagine a part of space without magnetic fields, but with a gravitational field. How is this possible when matter is electromagnetic in nature and matter is supposed to curve 'space-time' in order to give us the phenomena we term 'gravity'? The space Einstein imagines can contain no matter and thus can have no gravity field. It is his assumption that what we call 'gravity' is an independent phenomena from the phenomena we term 'electromagnetism'. His concept of a gravitational ether might be correct, or not. What actual experiment or observation does he site to back up his ideas?

"An electric current is a flow of electric charge. In electric circuits this charge is often carried by moving electrons in a wire. It can also be carried by ions in an electrolyte, or by both ions and electrons such as in a plasma."

"Electric currents cause Joule heating, which creates light in incandescent light bulbs. They also create magnetic fields, which are used in motors, inductors and generators.

The particles that carry the charge in an electric current are called charge carriers. In metals, one or more electrons from each atom are loosely bound to the atom, and can move freely about within the metal. These conduction electrons are the charge carriers in metal conductors."

see: https://en.wikipedia.org/wiki/Electric_current

ALL MATTER HAS ELECTROMAGNETIC PROPERTIES:

Yet Einstein Can imagine "Space-time" without electro-magnetic fields.

Magnetism Explained

"ACCORDING to the general theory of relativity,

the geometrical properties of space are not independent,

but they are Determined by Matter."

Albert Einstein, General Relativity

Boring Magnets

"The idea of elementary magnets is due to Walter Ritz (1907) and Pierre Weiss. Already before the Rutherford model of atomic structure, several theorists commented that the magneton should involve Planck's constant *h*.[7] By postulating that the ratio of electron kinetic energy to orbital frequency should be equal to *h*, Richard Gans computed a value that was twice as large as the Bohr magneton in September 1911.[8] At the First Solvay Conference in November that year, Paul Langevin obtained a submultiple.[9] The Romanian physicist Ștefan Procopiu had obtained the expression for the magnetic moment of the electron in 1911.[10][11] The value is sometimes referred to as the "Bohr–Procopiu magneton" in Romanian scientific literature.

The Bohr magneton is the magnitude of the magnetic dipole moment of an orbiting electron with an orbital angular momentum of one ħ. According to the Bohr model, this is the ground state, i.e. the state of lowest possible energy.[13] In the summer of 1913, this value was naturally obtained by the Danish physicist Niels Bohr as a consequence of his atom model.[8][14] The result was also independently derived in 1913 by Procopiu using Max Planck's quantum theory.[11] In 1920, Wolfgang Pauli gave the Bohr magneton its name in an article where he contrasted it with the magneton of the experimentalists which he called the Weiss magneton.[7]

Although the spin angular momentum of an electron is 1/2 ħ, the intrinsic magnetic moment of the electron caused by its spin is still approximately one

Bohr magneton. The electron spin g-factor is approximately two."

Einstein Ether Speech

"Albert Einstein gave an address on 5 May 1920 at the University of Leiden. He chose as his topic *Ether and the Theory of Relativity.* He lectured in German but we present an English translation below. The lecture was published by Methuen & Co. Ltd, London, in 1922."

1920:

Ether and the Theory of Relativity

by
Albert Einstein

How does it come about that alongside of the idea of ponderable matter, which is derived by abstraction from everyday life, the physicists set the idea of the existence of another kind of matter, the ether? The explanation is probably to be sought in those phenomena which have given rise to the theory of action at a distance, and in the properties of light which have led to the undulatory theory. Let us devote a little while to the consideration of these two subjects.

Outside of physics we know nothing of action at a distance. When we try to connect cause and effect in the experiences which natural objects afford us, it seems at first as if there were no other mutual actions than those of immediate contact, e.g. the communication of motion by impact, push and pull, heating or inducing combustion by means of a flame, etc. It is true that even in everyday experience weight, which is in a sense action at a distance, plays a very important part. But since in daily experience the weight of bodies meets us as something constant, something not linked to any cause which is variable in time or place, we do not in everyday life speculate as to the cause of gravity, and therefore do not become conscious of its character as action at a distance. It was Newton's theory of gravitation that first assigned a cause for gravity by interpreting it as action at a distance, proceeding from masses. Newton's theory is probably the greatest stride ever made in the effort towards the causal nexus of natural phenomena. And yet this theory evoked a lively sense of discomfort among Newton's contemporaries, because it seemed to be in conflict with the principle springing from the rest of experience, that there can be reciprocal action only through contact, and not through immediate action at a distance.

It is only with reluctance that man's desire for knowledge endures a dualism of this kind. How was unity to be preserved in his comprehension of the forces of nature? Either by trying to look upon contact forces as being themselves distant forces which admittedly are observable only at a very small distance and this was the road which Newton's followers, who were entirely under the spell of his doctrine, mostly preferred to take; or by assuming that the Newtonian action at a distance is only apparently immediate action at a distance, but in truth is conveyed by a medium permeating space, whether by movements or by elastic deformation of this medium. Thus the endeavour toward a unified view of the nature of forces leads to the hypothesis of an ether. This hypothesis, to be sure, did not at first bring with it any advance in the theory of gravitation or in physics generally, so that it became customary to treat Newton's law of force as an axiom not further reducible. But the ether hypothesis was bound always to play some part in physical science, even if at first only a latent part.

When in the first half of the nineteenth century the far-reaching similarity was revealed which subsists between the properties of light and those of elastic waves in ponderable bodies, the ether hypothesis found fresh support. It appeared beyond question that light must be interpreted as a vibratory process in an elastic, inert medium filling up universal space. It also seemed to be a necessary consequence of the fact that light is capable of polarisation that this medium, the ether, must be of the nature of a solid body, because transverse waves are not possible in a fluid, but only in a solid. Thus the physicists were bound to arrive at the theory of the "quasi-rigid" luminiferous ether, the parts of which can carry out no movements relatively to one another except the small movements of deformation which correspond to light-waves.

This theory - also called the theory of the stationary luminiferous ether - moreover found a strong support in an experiment which is also of fundamental importance in the special theory of relativity, the experiment of Fizeau, from which one was obliged to infer that the luminiferous ether does not take part in the movements of bodies. The phenomenon of aberration also favoured the theory of the quasi-rigid ether.

The development of the theory of electricity along the path opened up by Maxwell and Lorentz gave the development of our ideas concerning the ether quite a peculiar and unexpected turn. For Maxwell himself the ether indeed still had properties which were purely mechanical, although of a much more complicated kind than the mechanical properties of tangible solid bodies. But neither Maxwell nor his followers succeeded in elaborating a mechanical model for the ether which might furnish a satisfactory mechanical interpretation of Maxwell's laws of the electro-magnetic field. The laws were clear and simple, the mechanical interpretations clumsy and contradictory. Almost imperceptibly the theoretical physicists adapted themselves to a situation which, from the standpoint of their mechanical programme, was very depressing. They were particularly influenced by the electro-dynamical investigations of Heinrich Hertz. For whereas they previously had required of a conclusive theory that it should content itself with the fundamental concepts which belong exclusively to mechanics (e.g. densities, velocities, deformations, stresses) they gradually accustomed themselves to admitting electric and magnetic force as fundamental concepts side by side with those of mechanics, without requiring a mechanical interpretation for them. Thus the purely mechanical view of nature was gradually abandoned. But this change led to a fundamental dualism which in the long-run was insupportable. A way of escape was now sought in the reverse direction, by reducing the principles of mechanics to those of electricity, and this especially as confidence in the strict validity of the equations of Newton's mechanics was shaken by the experiments with b-rays and rapid cathode rays.

This dualism still confronts us in unextenuated form in the theory of Hertz, where matter appears not only as the bearer of velocities, kinetic energy, and mechanical pressures, but also as the bearer of electromagnetic fields. Since such fields also occur in vacuo - i.e. in free ether-the ether also appears as bearer of electromagnetic fields. The ether appears indistinguishable in its functions from ordinary matter. Within matter it takes part in the motion of matter and in empty space it has everywhere a velocity; so that the ether has a definitely assigned velocity throughout the whole of space. There is no fundamental difference between Hertz's ether and ponderable matter (which in part subsists in the ether).

The Hertz theory suffered not only from the defect of ascribing to matter and ether, on the one hand mechanical states, and on the other hand electrical

states, which do not stand in any conceivable relation to each other; it was also at variance with the result of Fizeau's important experiment on the velocity of the propagation of light in moving fluids, and with other established experimental results.

Such was the state of things when H A Lorentz entered upon the scene. He brought theory into harmony with experience by means of a wonderful simplification of theoretical principles. He achieved this, the most important advance in the theory of electricity since Maxwell, by taking from ether its mechanical, and from matter its electromagnetic qualities. As in empty space, so too in the interior of material bodies, the ether, and not matter viewed atomistically, was exclusively the seat of electromagnetic fields. According to Lorentz the elementary particles of matter alone are capable of carrying out movements; their electromagnetic activity is entirely confined to the carrying of electric charges. Thus Lorentz succeeded in reducing all electromagnetic happenings to Maxwell's equations for free space.

As to the mechanical nature of the Lorentzian ether, it may be said of it, in a somewhat playful spirit, that immobility is the only mechanical property of which it has not been deprived by H A Lorentz. It may be added that the whole change in the conception of the ether which the special theory of relativity brought about, consisted in taking away from the ether its last mechanical quality, namely, its immobility. How this is to be understood will forthwith be expounded.

The space-time theory and the kinematics of the special theory of relativity were modelled on the Maxwell-Lorentz theory of the electromagnetic field. This theory therefore satisfies the conditions of the special theory of relativity, but when viewed from the latter it acquires a novel aspect. For if *K* be a system of coordinates relatively to which the Lorentzian ether is at rest, the Maxwell-Lorentz equations are valid primarily with reference to *K*. But by the special theory of relativity the same equations without any change of meaning also hold in relation to any new system of co-ordinates *K*' which is moving in uniform translation relatively to *K*. Now comes the anxious question:- Why must I in the theory distinguish the *K* system above all *K*' systems, which are physically equivalent to it in all respects, by assuming that the ether is at rest relatively to the *K* system? For the theoretician such an asymmetry in the theoretical structure, with no corresponding asymmetry in the system of experience, is intolerable. If we assume the ether to be at rest relatively to *K*, but in motion relatively to *K*', the physical equivalence of *K* and *K*' seems to me from the logical standpoint, not indeed downright incorrect, but nevertheless unacceptable.

The next position which it was possible to take up in face of this state of things appeared to be the following. The ether does not exist at all. The electromagnetic fields are not states of a medium, and are not bound down to any bearer, but they are independent realities which are not reducible to anything else, exactly like the atoms of ponderable matter. This conception suggests itself the more readily as, according to Lorentz's theory, electromagnetic radiation, like ponderable matter, brings impulse and energy with it, and as, according to the special theory of relativity, both matter and radiation are but special forms of distributed energy, ponderable mass losing its isolation and appearing as a special form of energy.

More careful reflection teaches us however, that the special theory of relativity does not compel us to deny ether. We may assume the existence of an ether; only we must give up ascribing a definite state of motion to it, i.e. we must by abstraction take from it the last mechanical characteristic which Lorentz had still left it. We shall see later that this point of view, the conceivability of which I shall at once endeavour to make more intelligible by a somewhat halting comparison, is justified by the results of the general theory of relativity.

Think of waves on the surface of water. Here we can describe two entirely different things. Either we may observe how the undulatory surface forming the boundary between water and air alters in the course of time; or else-with the help of small floats, for instance - we can observe how the position of the separate particles of water alters in the course of time. If the existence of such floats for tracking the motion of the particles of a fluid were a fundamental impossibility in physics - if, in fact nothing else whatever were observable than the shape of the space occupied by the water as it varies in time, we should have no ground for the assumption that water consists of movable particles. But all the same we could characterise it as a medium.

We have something like this in the electromagnetic field. For we may picture the field to ourselves as consisting of lines of force. If we wish to interpret these lines of force to ourselves as something material in the ordinary sense, we are tempted to interpret the dynamic processes as motions of these lines of force, such that each separate line of force is tracked through the course of time. It is well known, however, that this way of regarding the electromagnetic field leads to contradictions.

Generalising we must say this:- There may be supposed to be extended physical objects to which the idea of motion cannot be applied. They may not be thought of as consisting of particles which allow themselves to be separately tracked through time. In Minkowski's idiom this is expressed as follows:- Not every extended conformation in the four-dimensional world can be regarded as composed of world-threads. The special theory of relativity forbids us to assume the ether to consist of particles observable through time, but the hypothesis of ether in itself is not in conflict with the special theory of relativity. Only we must be on our guard against ascribing a state of motion to the ether.

Certainly, from the standpoint of the special theory of relativity, the ether hypothesis appears at first to be an empty hypothesis. In the equations of the electromagnetic field there occur, in addition to the densities of the electric charge, only the intensities of the field. The career of electromagnetic processes in vacuo appears to be completely determined by these equations, uninfluenced by other physical quantities. The electromagnetic fields appear as ultimate, irreducible realities, and at first it seems superfluous to postulate a homogeneous, isotropic ether-medium, and to envisage electromagnetic fields as states of this medium.

But on the other hand there is a weighty argument to be adduced in favour of the ether hypothesis. To deny the ether is ultimately to assume that empty space has no physical qualities whatever. The fundamental facts of mechanics do not harmonize with this view. For the mechanical behaviour of a corporeal system hovering freely in empty space depends not only on relative positions (distances) and relative velocities, but also on its state of rotation, which physically may be taken as a characteristic not appertaining to the system in itself. In order to be able to look upon the rotation of the system, at least formally, as something real, Newton objectivises space. Since he classes his absolute space together with real things, for him rotation relative to an absolute space is also something real. Newton might no less well have called his absolute space "Ether"; what is essential is merely that besides observable objects, another thing, which is not perceptible, must be looked upon as real, to enable acceleration or rotation to be looked upon as something real.

It is true that Mach tried to avoid having to accept as real something which is not observable by endeavouring to substitute in mechanics a mean acceleration with reference to the totality of the masses in the universe in place of an acceleration with reference to absolute space. But inertial resistance opposed to relative acceleration of distant masses presupposes action at a distance; and as the modern physicist does not believe that he may accept this action at a distance, he comes back once more, if he follows Mach, to the ether, which has to serve as medium for the effects of inertia. But this conception of the ether to which we are led by Mach's way of thinking differs essentially from the ether as conceived by Newton, by Fresnel, and by Lorentz. Mach's ether not only conditions the behaviour of inert masses, but is also conditioned in its state by them.

Mach's idea finds its full development in the ether of the general theory of relativity. According to this theory the metrical qualities of the continuum of space-time differ in the environment of different points of space-time, and are partly conditioned by the matter existing outside of the territory under consideration. This space-time variability of the reciprocal relations of the standards of space and time, or, perhaps, the recognition of the fact that "empty space" in its physical relation is neither homogeneous nor isotropic, compelling us to describe its state by ten functions (the gravitation potentials *gmn*), has, I think, finally disposed of the view that space is physically empty. But therewith the conception of the ether has again acquired an intelligible content although this content differs widely from that of the ether of the mechanical undulatory theory of light. The ether of the general theory of relativity is a medium which is itself devoid of all mechanical and kinematical qualities, but helps to determine mechanical (and electromagnetic) events.

What is fundamentally new in the ether of the general theory of relativity as opposed to the ether of Lorentz consists in this, that the state of the former is at every place determined by connections with the matter and the state of the ether in neighbouring places, which are amenable to law in the form of differential equations; whereas the state of the Lorentzian ether in the absence of electromagnetic fields is conditioned by nothing outside itself, and is everywhere the same. The ether of the general theory of relativity is transmuted conceptually into the ether of Lorentz if we substitute constants for the functions of space which describe the former, disregarding the causes which condition its state. Thus we may also say, I think, that the ether of the general theory of relativity is the outcome of the Lorentzian ether, through relativation.

As to the part which the new ether is to play in the physics of the future we are not yet clear. We know that it determines the metrical relations in the space-time continuum, e.g. the configurative possibilities of solid bodies as well as the gravitational fields; but we do not know whether it has an essential share in the structure of the electrical elementary particles constituting matter. Nor do we know whether it is only in the proximity of ponderable masses that its structure differs essentially from that of the Lorentzian ether; whether the geometry of spaces of cosmic extent is approximately Euclidean. But we can assert by reason of the relativistic equations of gravitation that there must be a departure from Euclidean relations, with spaces of cosmic order of magnitude, if there exists a positive mean density, no matter how small, of the matter in the universe.

In this case the universe must of necessity be spatially unbounded and of finite magnitude, its magnitude being determined by the value of that mean density.

If we consider the gravitational field and the electromagnetic field from the standpoint of the ether hypothesis, we find a remarkable difference between the two. There can be no space nor any part of space without gravitational potentials; for these confer upon space its metrical qualities, without which it cannot be imagined at all. The existence of the gravitational field is inseparably bound up with the existence of space. On the other hand a part of space may very well be imagined without an electromagnetic field; thus in contrast with the gravitational field, the electromagnetic field seems to be only secondarily linked to the ether, the formal nature of the electromagnetic field being as yet in no way determined by that of gravitational ether. From the present state of theory it looks as if the electromagnetic field, as opposed to the gravitational field, rests upon an entirely new formal motif, as though nature might just as well have endowed the gravitational ether with fields of quite another type, for example, with fields of a scalar potential, instead of fields of the electromagnetic type.

Since according to our present conceptions the elementary particles of matter are also, in their essence, nothing else than condensations of the electromagnetic field, our present view of the universe presents two realities which are completely separated from each other conceptually, although connected causally, namely, gravitational ether and electromagnetic field, or - as they might also be called - space and matter.

Of course it would be a great advance if we could succeed in comprehending the gravitational field and the electromagnetic field together as one unified conformation. Then for the first time the epoch of theoretical physics founded by Faraday and Maxwell would reach a satisfactory conclusion. The contrast between ether and matter would fade away, and, through the general theory of relativity, the whole of physics would become a complete system of thought, like geometry, kinematics, and the theory of gravitation. An exceedingly ingenious attempt in this direction has been made by the mathematician H Weyl; but I do not believe that his theory will hold its ground in relation to reality. Further, in contemplating the immediate future of theoretical physics we ought not unconditionally to reject the possibility that the facts comprised in the quantum theory may set bounds to the field theory beyond which it cannot pass.

Recapitulating, we may say that according to the general theory of relativity space is endowed with physical qualities; in this sense, therefore, there exists an ether. According to the general theory of relativity space without ether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense. But this ether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time. The idea of motion may not be applied to it.

Steinmetz Says

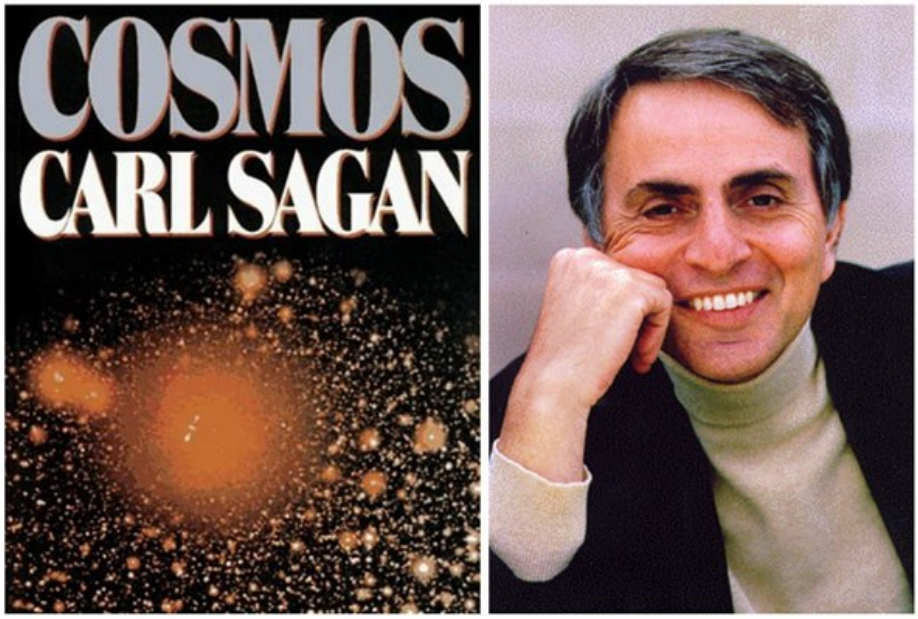
Above, *"Marconi Wireless Station in Somerset, New Jersey in 1921, on the day Albert Einstein was given a tour. Steinmetz is at center..."*

"The belief in an ether is in contradiction to the relativity theory, since this theory shows that there is no absolute position nor motion, but that all positions and motions are relative and equivalent." Steinmetz

"Thus the conception of the Ether is one of those untenable hypotheses which have been made in the attempt to explain some difficulty. The more it is studied and conclusions drawn from it, the more contradictions we get, and the more unreasonable and untenable it becomes. It has been merely conservatism or lack of courage which has kept us from openly abandoning the ether hypothesis. ***The belief in an ether is in contradiction to the relativity theory, since this theory shows that there is no absolute position nor motion, but that all positions and motions are relative and equivalent. If, however, an ether existed, then the position at rest with regard to the ether, and the motion relative to the ether, would be absolute and different from other positions and motions, and the assumption of an ether thus leads to the conclusion of the existence of absolute motion and position and so contradicts the relativity theory. Thus the hypothesis of the ether has been finally disproven and abandoned. There is no such thing as the Ether, and light and the wireless waves are not wave motions of the Ether."***

Charles Steinmetz, Four Lectures on Relativity and Space, 1923 https://archive.org/details/fourlecturesonre00stei

see also: https://en.wikipedia.org/wiki/Charles_Proteus_Steinmetz



Carl Sagan Says

Carl Sagan in his book Cosmos has this to say about the Michelson Morley experiment and the Ether, compare it to Einstein's 1920 Ether speech. (From the 1995 Wings Books edition, page 201.)

“Light, however, travels in a vacuum. There are restrictions on how molecules of air can move which do not apply to a vacuum. Light from the Sun reaches us across the intervening empty space, but no matter how carefully we listen, we do not hear the crackle of sunspots or the thunder of solar flares. It was once thought, in the day before relativity, that the light did propagate through a special medium that permeated all of space, called “the luminiferous aether’. But the famous Michelson-Morley experiment demonstrated that such an aether did not exist.”

Obviously this is wrong. Carl Sagan gets an “F” in History. As we can read for ourselves, not only did Einstein himself recognize the need for an ether or medium for light, as his speech in 1920 clearly shows. Lorentz and Poincare’s work is predicated upon the existence of the ether, without which there would be no basis for a Lorentz Transformation in the first place. Remember, length contraction and time dilation were concocted after the Michelson Morley experiment’s famed ‘null’ result was published. These two ‘ad hoc’ explanations only exist to compensate for the lack of measured motion. The idea that light needed a medium was not in question. Or logically it should not have been. Michelson himself thought the results of his famed experiment supported an Aether Drag theory. The fact that Sagan and others confuse the issue by questioning the logical need for a medium for light, is besides the point. Logically, as Einstein himself, and the work he based his work on, clearly states and shows, that light as is described has to logically be a wave in a medium. The second postulate of the Special Theory itself describes a wave in a motionless medium. The constant velocity of light, transcendent of the motion of its emitter describes a wave in some kind of medium and not a stream of material particles.

see: https://en.wikipedia.org/wiki/Henri_Poincaré#Work_on_relativity

Einstein Says

"Recapitulating, we may say that according to the general theory of relativity space is endowed with physical qualities; in this sense, therefore, there exists an ether. According to the general theory of relativity space without ether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense."

Neil deGrasse Tyson explains Michelson Morley

see also: https://en.wikipedia.org/wiki/Emission_theory#Interferometry

There is no True Vacuum in Space

"Outer space has very low density and pressure, and is the closest physical approximation of a perfect vacuum. But no vacuum is truly perfect, not even in interstellar space, where there are still a few hydrogen atoms per cubic meter."

It would seem that there is always a medium for light to "wave". As the genie reached "unimaginable" speeds, this medium would act to slow the magical being's motion down, would it not?

Gas Out!

"Outgassing is a challenge to creating and maintaining clean high-vacuum environments. NASA and ESA maintains a list of low-outgassing materials to be used for spacecraft, as outgassing products can condense onto optical elements, thermal radiators, or solar cells and obscure them. Materials not normally considered absorbent can release enough light-weight molecules to interfere with industrial or scientific vacuum processes. Moisture, sealants, lubricants, and adhesives are the most common sources, but even metals and glasses can release gases from

cracks or impurities. The rate of outgassing increases at higher temperatures because the vapour pressure and rate of chemical reaction increases. For most solid materials, the method of manufacture and preparation can reduce the level of outgassing significantly. Cleaning surfaces or baking individual components or the entire assembly before use can drive off volatiles.

NASA's Stardust spaceprobe suffered reduced image quality due to an unknown contaminant that had condensed on the CCD sensor of the navigation camera. A similar problem affected the Cassini spaceprobe's Narrow Angle Camera, but was corrected by repeatedly heating the system to 4 °C. A comprehensive characterisation of outgassing effects using mass spectrometers could be obtained for ESA's Rosetta spacecraft.[2]"

Nikola Tesla on Mass & Energy:

"The kinetic and potential energy of a body is the result of motion and determined by the product of its mass and the square of velocity. Let the mass be reduced, the energy is diminished in the same proportion. If it be reduced to zero the energy is likewise zero for any finite velocity. In other words, it is absolutely impossible to convert mass into energy. It would be different if there were forces in nature capable of imparting to a mass infinite velocity. Then the product of zero mass with the square of infinite velocity would represent infinite energy. But we know that there are no such forces and the idea that mass is convertible into energy is rank nonsense."

The existence of the Aether would disprove Special Relativity, according to Einstein....

EINSTEIN: 1925

"My opinion about Miller's experiments is the following. ... Should the positive result be confirmed, then the special theory of relativity and with it the general theory of relativity, in its current form, would be invalid."
— Albert Einstein, 1925

"I believe that I have really found the relationship between gravitation and electricity, assuming that the Miller experiments are based on a fundamental error. Otherwise, the whole relativity theory collapses like a house of cards."
— Albert Einstein, 1921

see: https://en.wikipedia.org/wiki/Dayton_Miller

"Einstein was interested in this aether drift theory and acknowledged that a positive result for the existence of aether would invalidate the theory of special relativity, but commented that altitudal influences and temperatures may have provided sources of error in the findings. *Miller commented:*

> The trouble with Professor Einstein is that he knows nothing about my results. [...] He ought to give me credit for knowing that temperature differences would affect the results. He wrote to me in November suggesting this. I am not so simple as to make no allowance for temperature."

SOURCE and other REFERENCE:

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https://www.fourmilab.ch/etexts/einstein/specrel/www/

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How the medium can be shown to move with an accelerated reference frame and how Einstein's view of equivalence is correct in a limited fashion: (This could also show why what we term 'gravity' might have something to do with gas pressure and perhaps the dielectric or electrostatic field)

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Origins and history of Relativity in the context of aether theories

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https://en.wikipedia.org/wiki/Geodesic

https://en.wikipedia.org/wiki/Faraday_effect#History

Stokes Ether Drag: https://en.wikipedia.org/wiki/Aether_drag_hypothesis

https://en.wikipedia.org/wiki/Emission_theory

https://en.wikipedia.org/wiki/Sidereal_time

https://en.wikipedia.org/wiki/Solar_time

https://en.wikipedia.org/wiki/Lorentz_transformation

https://en.wikipedia.org/wiki/Inertial_frame_of_reference

http://www.wikipedia.or.ke/index.php/Michelson–Morley_experiment

https://en.wikipedia.org/wiki/Length_measurement

https://en.wikipedia.org/wiki/Time_dilation#Relative_velocity_time_dilation

http://www.splung.com/content/sid/4/page/planemirrors

https://en.wikipedia.org/wiki/Thermocouple

https://en.wikipedia.org/wiki/Thermoelectric_effect

https://en.wikipedia.org/wiki/Albert_Einstein

https://en.wikipedia.org/wiki/International_Space_Station#Orbit

LeBon's "Evolution of Matter":

https://archive.org/details/evolutionmatter00legggoog

https://en.wikipedia.org/wiki/Outgassing

see also:
http://www.conspiracyoflight.com/SagnacRel/SagnacandRel.html

The Work of JJ Thomson is excellent, his work gave us the concept of the "electron" as we know it.

https://archive.org/details/electricitymatte00thomiala

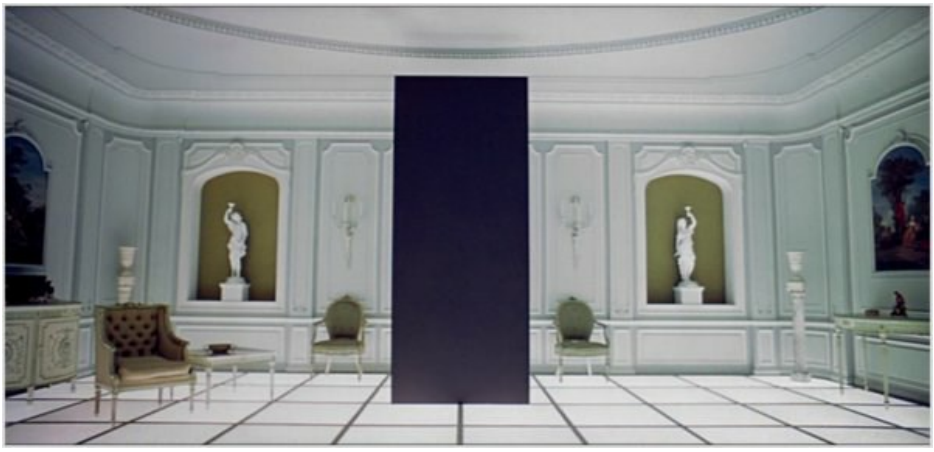
https://en.wikipedia.org/wiki/Nanosecond

https://en.wikipedia.org/wiki/Buoyancy

A Post Script: Einstein Means 'One Stone'

"Einstein Name Meaning

German and Jewish (Ashkenazic): habitational name from any of various places named with a Middle High German derivative of einsteinen 'to enclose or surround with stone'. In the unsettled social climate of the Middle Ages even relatively minor settlements were commonly surrounded with stone walls as a defense against attack.Jewish (Ashkenazic): ornamental name composed of German ein 'one' + Stein 'stone'."



monolith (n.)

"column consisting of a single large block of stone," 1848, from French *monolithe* (16c.), from Latin *monolithus* (adj.) "consisting of a single stone," from Greek *monolithos* "made of one stone," from *monos* "single, alone" (see mono-) + *lithos* "stone." Transferred and figurative use is from 1934.

Tags: Einstein, Albert Einstein, Michelson Morley, Ether, Aether, Relativity, special relativity, general relativity, principle, Carl Sagan, COSMOS, physics, metaphysics, Neil deGrasse Tyson, astrophysics, Gravity Waves, LIGO, Twin Paradox That Wasn't, Twin Paradox, Paradox, metaphysics and physics, Gedankenexperiment, Thought Experiment, Flat Earth, Earth, Light, photon, electron, proton, Tesla, Neil deGrasse Tyson and Flat Earth, NASA, gravity, gravity wave, gravity detected, acceleration, equivalence, Einstein Was Wrong, Einstein Wrong, Einstein is Wrong, Einstein wrong, Relativity is Wrong, relativity, relativity is wrong, special relativity is wrong, general relativity is wrong, einstein was wrong, einstein is wrong, einstein, wrong, einstein wrong
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